# Vermont State Health Plan 2005

## Table of Contents

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# 2005

## Executive Summary

In 2003, the Vermont General Assembly passed Act 53, an act relating to hospital and health care system accountability, capital spending and annual budgets. The act requires the Secretary of Human Services to adopt a state health plan that sets forth the health goals and values for the state.

The focus of the Vermont State Health Plan 2005 is on changing the Vermont system of health care to address the challenges of chronic illness, emphasize prevention, improve quality, and endorse a collaborative care model that recognizes the role of the patient as primary care giver. The plan includes information on health promotion, health protection, nutrition, and disease prevention priorities for the state. It identifies resources needed to achieve the state's health goals and areas in which additional resources are needed to improve the health of the population. And, it employs a health systems approach to planning and recognizes that the systems needed to eliminate health disparities and increase quality and years of healthy life are not currently in place.

At this time there is no unified system of health care. Rather, there is a collection of services, organizations and financing units that take on various functions of a system, but without a common vision and with little coordination. Until health care is truly systematic, and the various sectors work together in collaboration, it will be difficult, if not impossible to move toward the goals of improved health, better access to care, high quality care and reduced costs.

The foundation of this plan must be a combination of the collaborative models of public health and the chronic care model of clinical health care. At the core of the model are the people who deliver and receive health services in a "patient-provider" partnership. Three key organizational sectors facilitate this partnership and the overall effectiveness of health services—the health care sector, communities and public health. Each sector will play a greater or lesser role. Depending on the issue presented, patient needs or services delivered. All, however, must be aligned, supported, and work in concert to achieve the goal of healthy Vermonters living in healthy communities.

The plan identifies outcomes, action steps and background descriptions for the core planning areas described in the planning model and five key policy areas—prevention, access to care, accountability and transparency, quality of care and integrated health information system. In addition, many priority health issues that require special focus are described and actions stated. Following is a brief description of each section in the plan.

## *Planning Model*

***Individuals/Consumers***

To most effectively manage their own health and health care, individuals must be fully informed, share responsibility for deciding their treatment plans, and undertake the lifestyle changes or treatments necessary to prevent disease or reduce complications. This requires that health education be understandable, the support systems to promote and maintain self-management skills are in place, and tools to allow fully informed, shared decision making be available.

- Specific topic areas in this chapter include: Health Education, Self Care, Shared Decision Making, and Support Systems.

***Providers***

Combining knowledge of health and medicine, technology, and the human touch, physicians, nurses and other health workers administer services around the clock, responding to the needs of Vermonters, from newborns to the critically ill. Providers include physicians, nurses, dentists, dietitians, therapists, counselors, and many other health care specialties. In Vermont, a shortage of health care workers in key industry specialty areas, including nursing and mental health, threatens the quality of services people receive. This plan calls for a greater emphasis on patient-centered care, new skills for guiding and supporting individuals, and new information technology to improve the quality, timeliness and efficiency of care.

- Specific topic areas in this chapter include: Health Professions' Shortage, Proactive, Planned Care, Person-centered Care, Complementary and Alternative Medicine, Health Professions' Education, and Maintaining Competency.

***Health Care Sector***

The health care sector is where health policies are established and the availability and delivery of services are controlled. It is large and complex and encompasses, among others, hospitals, ambulatory care organizations, health plans and the purchasers of health insurance. The entities that make up the health care sector are individual organizations that, although they often work together, are also likely to work independently and compete with one another. Unlike most markets, the entities in health care must ensure the continued availability of services that have a low return on investment and must provide those services to those who cannot afford to pay.

- Specific topic areas in this chapter include: The Health Care System, Markets and Regulation, and Cost Control.

***Community***

Communities are made up of people, institutions and services that provide social identity and that support attitudes and behavior about health, both good and bad. In most cases, communities don't view themselves as part of a health system. Communities however, have a profound effect on public health. By their very design they help shape beliefs and behaviors regarding health. Further, they support healthy behavior and discourage unhealthy practices through community norms and the availability of services.

- Specific topic areas in this chapter include: Community Support Services and Infrastructure and Policies.

***Public Health***

The focus of public health is on population health rather than individual health. Public health is responsible for the development and implementation of policies, services and systems to prevent health problems. Their policies regulate, influence and support the actions of individuals, providers, health care and communities. Another critical role of public health is the control of infectious disease and the ability to respond quickly to events such as disease outbreaks or epidemics. The need for public health intervention to help control chronic disease has emerged over the past several decades. It is estimated that 70 percent of premature mortality could be prevented by reducing risky behaviors and environmental threats. An effective public health system requires collaborative effort from a fully integrated yet complex network of people and organizations.

- Specific topic areas in this chapter include: Public Health Functions and Services, Public Health as an Investment, Response to Infectious Disease Events, and Collaboration with the Health Care and Community Sectors.

## *Key Policy Areas*

***Prevention as a Priority***

Promoting and preserving good health and preventing disease is so obviously important that few would disagree that prevention should be the focus of any health system. Yet the demands of treating illness and disability consistently overwhelm the desire for prevention. Prevention involves the identification and avoidance of risk factors in personal behavior and the environment and active promotion of protective assets and resiliency factors. It also requires implementing community-based preventive services; attending to early detection and prevention through clinical screening, counseling and immunization, and preventing adverse consequences in those who already have chronic conditions.

- Specific topic areas in this chapter include: Risk Factors, Personal Attributes and Social Environment, Physical Environment, Community Preventive Services, Clinical Preventive Services, and Preventing Adverse Consequences.

***Access to Care***

Making health care accessible to all Vermonters requires that health insurance coverage is available and affordable. It also requires attention to factors such as poverty, cultural differences, the availability of health care providers, access to transportation and location of needed services within the community.

- Specific topic areas in this chapter include: Health Insurance, Cultural Competency, Poverty, and Safety Net Services.

***Quality of Care***

Quality of care is defined as the "degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge." High quality care avoids overuse, under use and inappropriate use of services and assures that care is safe and effective.

- Specific topic areas in this chapter include: Patient Safety, Practice Variation, and Evidence-based Care.

***Accountability and Transparency***
Individuals, providers, health care institutions, communities and public health must all be held accountable for their activities, policies and practices. As appropriate they should be called upon to justify and/or change the way they do business. Accountability obligations include regular reports to the public on critical measures of performance.

- Specific topic areas in this chapter include: Systems of Accountability and Reporting.

***Integrated Health Information System***
A major barrier to better health care in Vermont and the U.S. is the lack of a comprehensive integrated information system. There are significant gaps within and between existing information technology components. As a result health care providers seldom have the tools they need to provide proactive, planned care. In addition public health and health care organizations lack the information they need to effectively plan and deploy services and resources.

- Specific topic areas in this chapter include: Practice-based systems, Public Health Systems, and Health Care Information Systems.

## *Focus Areas*

***Chronic Conditions (Vermont Blueprint for Health)***
More than half of all Vermonters have chronic conditions and the cost of their care represents 83 percent of all health care spending. Improving care and outcomes for this population requires knowledgeable consumers practicing improved self care, a practice team providing timely planned care, improved information (data), decision support, office systems and supportive community, health care and public health infrastructure.

- Specific topic areas in this chapter include The Vermont Blueprint for Health and Health Care and Public Health.

***Emergency Medical Services (EMS)***
The rural nature of Vermont's challenges emergency services to be available statewide while demographics dictate that in many areas these services will be used infrequently. It costs about $350,000 per year to staff and operate a single ambulance, however, approximately one-third of services make less than one call per day. There is little data by which to measure quality, set performance targets, develop new systems or meet public reporting standards for EMS.

- Specific topic areas in this chapter include Resources, Standards of Performance (Quality), and Trauma Care.

***End-of-Life Care***
Most people wish to die at home surrounded by family and friends, free of pain and without unwanted medical intervention to prolong suffering. The majority however, die in hospitals or nursing homes receiving unwanted medical intervention. End-of-life care and management of associated pain must be addressed in the same manner as other chronic conditions.

- See also: *Report to Vermont Attorney General William H. Sorrell from the Committees of the Attorney General's Initiative on End of Life Care, January 31, 2005.*

***Environmental Health***
Preventing environmentally related disease requires coordinated actions and policies of the community and public health organizations to protect, change or control environmental conditions that pose threats to health. To do this effectively, the multiple agencies responsible must work collaboratively and invest in the coordinated collection, analysis and dissemination of information relating to environmental risks.

- Specific topic areas in this chapter include: Prevention, Information Systems, Professional and Public Education and Organization and System Capacity.

***Health Promotion (Disease Prevention)***
It is estimated that each year behavioral factors are associated with more than half of all deaths in the U.S. Health promotion uses multiple strategies to improve knowledge, develop skills and support behavior change. It also includes interventions within the community and social environment that foster healthy decision making.

- Specific topic areas in this chapter include: Tobacco, Nutrition and Physical Activity and Other Behaviors.

***Infectious Disease***
Despite advances in the understanding and control of infectious disease, during the last century, new challenges continue to emerge. These include new and more virulent strains of infectious agents; an increase in the number of people with compromised immune systems; and an increase in the numbers of microorganisms that are resistant to anti-microbial agents.

- Specific topic areas in this chapter include: Community-acquired Infections, Immunization Programs, and Facility-acquired Infections.

***Injury***
Injuries are the leading cause of death among Vermonters aged 1 to 44 and the fifth leading cause of death among Vermonters of all ages. Risk for injury can be decreased through individual behavior, automatic protections, eliminating or minimizing dangerous environments, improved worker safety, and changed community and cultural norms.

- Specific topic areas in this chapter include: Motor Vehicle Injuries, Falls, and Interpersonal Violence.

***Long-term Care***
The term “long-term care” is used to describe the care and support that older people and people with disabilities need in order to perform their everyday activities, whether they are residents of a nursing facility or living in home or community-based settings. Since 1996, Vermont has worked to decrease the utilization of nursing homes and to develop more home and community-based services. As a result, Vermont has seen a marked shift in its long-term care system toward greater use of home and community-based care.

- Specific topic areas in this chapter include: People with Developmental Disabilities, Older Vermonters and Other Adults with Physical Disabilities and Home-care Workforce.

***Maternal and Child Health***
Despite much data and numerous reports identifying Vermont as an excellent place for families to live and thrive, many concerns remain for this highly vulnerable population. These include smoking among pregnant women and youth, alcohol use, sexual violence and low breastfeeding among low income women.

- Specific topic areas in this chapter include: Prenatal Care and Birth Outcomes, Family and Child Health, School Health and Children with Special Health Needs.

***Mental Health***
It is estimated that as many as 25 percent of adults and 20 percent of children will have a diagnosable mental health condition in any given year. These range from less severe conditions such as grief reaction to severe disorders such as schizophrenia. The scope of services needed ranges from prevention and primary care through ongoing treatment and emergency services.

- Specific topic areas in this chapter include: Impact of Mental Illness, Prevention, Primary Care Services, Treatment Services, Self-Care and Community Support Services, and Quality of Care.
- See also AHS Secretary's February 4, 2005 *Recommendations For the Future of Services Provided at the Vermont State Hospital: Strengthening the Continuum of Care for Vermonters with Mental Illness.*

***Oral Health***
The fragility of the dental health system in Vermont is widely recognized. The number of dentists increased by 20 between 1999 and 2003; however, during that time the number of full time equivalent dentists decreased from 290 to 281. Also, more than one-third of dentists plan to retire within 10 years.

- See also: *Vermont Oral Health Plan.*

***Substance Abuse***
Vermont has a serious substance abuse problem, with nearly 10 percent of adults and youth over age 12 in need of treatment. The societal impact of drug addiction including increased crime and lost productivity has exploded within our communities in recent years. This is evident by the significant increase in demand for treatment services and in incarceration rates, particularly among the female population.

- Specific topic areas in this chapter include: Impact of Substance Abuse, Prevention and Community-based Services, Access to and Integration of Services, and Accountability and Quality Assurance.

# Introduction

> *"[We are] confident that Americans can have a health care system of the quality they need, want and deserve. But we are also confident that this higher level of quality cannot be achieved by further stressing current systems of care. The current care systems cannot do the job. Trying harder will not work. Changing systems of care will."*
>
> Crossing the Quality Chasm

In 2003, the Vermont General Assembly passed Act 53, an act relating to hospital and health care system accountability, capital spending and annual budgets. The act requires the Secretary of Human Services to adopt a state health plan that sets forth the health goals and values for the state (Appendix A).

The focus of the Vermont State Health Plan 2005 is changing the Vermont system of health care to address the challenges of chronic illness, emphasize prevention, improve quality and endorse a collaborative care model that recognizes the role of the patient as primary care giver. This option was selected to draw all players into the process and to address how change can occur. At this time, there is no unified system of health care. Rather, there is a collection of services, organizations and financing units that take on various functions of a system, but without a common vision and with little coordination. Until health care is truly systematic it will be difficult, if not impossible to move toward the goals of improved health, greater access, higher quality care and reduced costs.

The Vermont State Health Plan 2005 proposes a "model for lifelong prevention and care" that draws on the work of the Vermont Blueprint for Health, an initiative that focuses on chronic disease care. The emphasis on prevention and care of chronic conditions is appropriate at this time. More than half of adult Vermonters have one or more chronic conditions (68% of people ages 45-65 and 88% of people over age 65) and in excess of 80 percent of all health care expenditures are for the care of these conditions. Further, there is ample evidence that investments in prevention of disease and improved quality of health services are cost effective strategies that can save money and improve quality of life. The proposed model has five components: individuals, providers, health care organizations, communities and public health. The plan identifies outcomes, action steps and background description for each.

Essential to effective and efficient systems are five overarching priorities (Key Priority Areas) that apply to all sectors of the health system and must be addressed to achieve our goals. These key policy areas include: prevention, access to care, quality of care, accountability and transparency and integrated information systems. Again, outcomes, action steps and background are described for each.

Finally, there are 12 specific health issues that require particular focus and attention in the new systems approach (Focus Areas). These are described and actions stated for each.

Development of this Plan involved the participation of countless individuals from the Department of Health, the Agency of Human Services, and others. Guidance was provided by the Advisory Committee to the Vermont Health Resources Allocation Plan, convened by the Department of Banking, Insurance, Securities and Health Care Administration (BISHCA) and the Executive Committee of the Vermont Blueprint for Health. The draft plan was posted on the Vermont Department of Health website and two public hearings were held. One hearing was done via interactive television and one "live." Comments from many Vermonters were incorporated into the final version of this plan.

This plan is not all inclusive, nor should it be considered final. There are numerous plans, mandated by the legislature or funding agencies currently in process, and many already in place. Appendix B lists many of these with publication dates (actual or planned). All need to be viewed as more specific components of this Vermont State Health Plan.

# Vision and Values Guiding this Plan

## Vision

The vision for Vermont is that the State will be a model for the rest of the nation with the healthiest people, living in healthy communities, with a proactive health system and a public health and government infrastructure that work collaboratively to minimize risks, prevent disease and disability, promote health, ensure access and provide state-of-the art care. In the new Vermont system the provider-individual partnership that is essential to good health outcomes, will be recognized and supported by all. Individual Vermonters will have the knowledge, skills and confidence to direct their own health care. Together with their health care provider they will set attainable goals and receive the support to work toward those goals from their family, friends and community. Health care providers will have the tools they need to deliver the right care at the right time. Communities will support consumers and providers to achieve good health outcomes through modeling healthier norms in behavior, services and basic infrastructure. Public and private sectors will work in partnership. Through these critical changes, the health of Vermonters will be improved and the cost of health care in Vermont will be moderated and become more sustainable.

Accomplishment of that vision is dependent on shared values for health and health systems.

## Values

- "Health is a state of **complete physical, mental and social well being,** and not merely the absences of disease." (*World Health Organization, 1948).*
- There are **multiple determinants** of health; it is the complex interactions of social, behavioral, economic, environmental and genetic influences.
- Improving health status and the quality of health services is a **shared responsibility** of individuals, health care providers, public health officials, health care executives and many others who contribute to the well being of individuals and populations.
- Multi-sector, multidisciplinary **partnerships and coalitions**, coupled with increased awareness of personal responsibility, are essential to decreasing risk and improving health. Organizations, associations, agencies and civic and community groups must work together, guided by *collaborative* leadership, sharing resources, and accountability for the common good.
- Services known to **prevent** occurrence of disease and/or limit progression of illness or disability in the population are a priority for both the public health and health care systems. Prevention services address behavioral, biological, clinical and environmental factors.
- It is essential to understand and address problems of social **equity** to ensure access to services for the poor, disabled, poorly educated, unskilled, racial-ethnic minorities and other vulnerable groups. Programs and policies need to incorporate a variety of approaches that anticipate diverse values, beliefs and cultures in the community.

- A supportive **environment** is essential to facilitate the ability of individuals and communities to create the conditions that make it possible to determine and act on informed choices and attain optimal health. These conditions can be enhanced by information, education, social support and public policies that encourage behavioral and environmental change.
- **Accountability and transparency** to patients, the public and one another is an essential component of an integrated and collaborative health system.
- Health services must be **safe, effective, patient-centered, timely, efficient and equitable**[1]**.** These aims have been adopted as the principles guiding development of the Health Resources Allocation Plan.

The Commission on the Public's Health Care Values and Priorities, using the results of a phone survey and multiple focus groups held throughout the state, identified values that have helped guide the preparation of this plan particularly the Chapters on Access to Health Care and End-of-Life Care. See Appendix C for a summary of results of the phone survey component of that work.

[1] Institute of Medicine. *Crossing the Quality Chasm*. National Academy Press, Washington DC. 2001.

## Healthy Vermonters 2010

Healthy Vermonters 2010 is the product of a public-private process that selected priority outcome objectives in 16 focus areas with two overarching objectives. More than 96 specific outcomes were identified in this process. These objectives are grouped into eight health objectives for the Vermont State Health Plan. The health systems change advocated in this plan is essential to meeting the objectives of Healthy Vermonters 2010.[2]

1. **Eliminate health disparities among different groups within the population.** Disparities include differences that occur because of gender, race, ethnicity, education, income, disability, living in rural localities or sexual orientation.
2. **Increase quality and years of healthy life**. This involves helping individuals gain the knowledge, motivation and opportunities they need to make informed decisions about their health.
3. **Improve access to primary health care services in Vermont.** The specific measures of success for this objective include the proportion of people with a source of ongoing primary care, dental care, and with insurance coverage.
4. **Increase the availability of community services that support healthy behaviors.** These Healthy Vermonter objectives are targeted to school interventions. In other plans (Appendix B) objectives for improving health include other community organizations including worksites, localities and others.
5. **Increase the proportion of Vermonters who adopt healthy behaviors that reduce their risk of disease and injury; and/or reduce the risk complications of disease.** There are 25 specific measures of success in this area addressing alcohol, cancer, food safety, heart disease, HIV/STD, injury, nutrition, physical activity, and tobacco. There are two objectives related specifically to self management education for people with diabetes and asthma.
6. **Ensure that the environment in which Vermonters live, work and play protects them from risk and promotes their health.** Seven objectives address environmental issues for Vermonters including: restaurant safety, drinking water, fluoridation, radon, fire protection, workplace safety and hunger.
7. **Increase the proportion of Vermonters that receive, from their health care provider, the preventive and treatment services known to be effective in promoting health and preventing and controlling disease.** There are 14 measures indicating that people have received the screening, counseling and immunization services appropriate to their age and risk. These address alcohol, chronic disease, mental health and oral health. In addition, there are six measures indicating that people have received specific services related to management of their chronic health condition.
8. **Increase the percent of people who are actively engaged in developing their own written health care plans with their provider(s).**

[2] Vermont Department of Health. *Healthy Vermonters 2010: Vermont's Blueprint for Improving Public Health*. 2000.

# Vermont State Health Plan
# 2005

## Part 2: A model for lifelong prevention and care

## *The Model*

*Outcome desired:* A holistic approach to health systems planning integrates the full continuum of services, recognizes the multiple dimensions of health, promotes collaboration and coordination, and is dedicated to high quality service delivery for all Vermonters.

*Action needed:*

- Adopt the model as the primary planning tool to set goals and develop strategies for health systems.
- Require that all proposals related to health services address the multiple components of the model and the impact of those proposals on other entities or sectors. Realign current services to be consistent with the model.
- Use the model to ensure full integration of all health-related activity, including the continuum of services from prevention through palliative care and to address acute, chronic and disabling conditions, mental health, oral health, and, substance abuse.
- Ensure that the policies for the delivery and payment of care are supportive of the desired outcomes of the model.

*Background*

The current health system can be characterized by its qualities of fragmentation, inequitable distribution of resources, innumerable inefficiencies, and other problems, all of which contribute to the high cost and unacceptably low level of quality in health care. The Institute of Medicine (IOM) cites numerous examples of fragmentation between primary care physicians and specialists, hospitals and long-term care, insurance policies and health care goals.[1] The poor coordination between the public health system and the health care establishment can be added to this list. In a health care economy that currently accounts for 13 percent of the gross domestic product, less than three cents out of every health care dollar is spent on public health. Specialty care commands greater resources than primary care. Duplication in tests, failure to provide needed care in a timely manner, and inappropriate care and error all lead to higher costs.

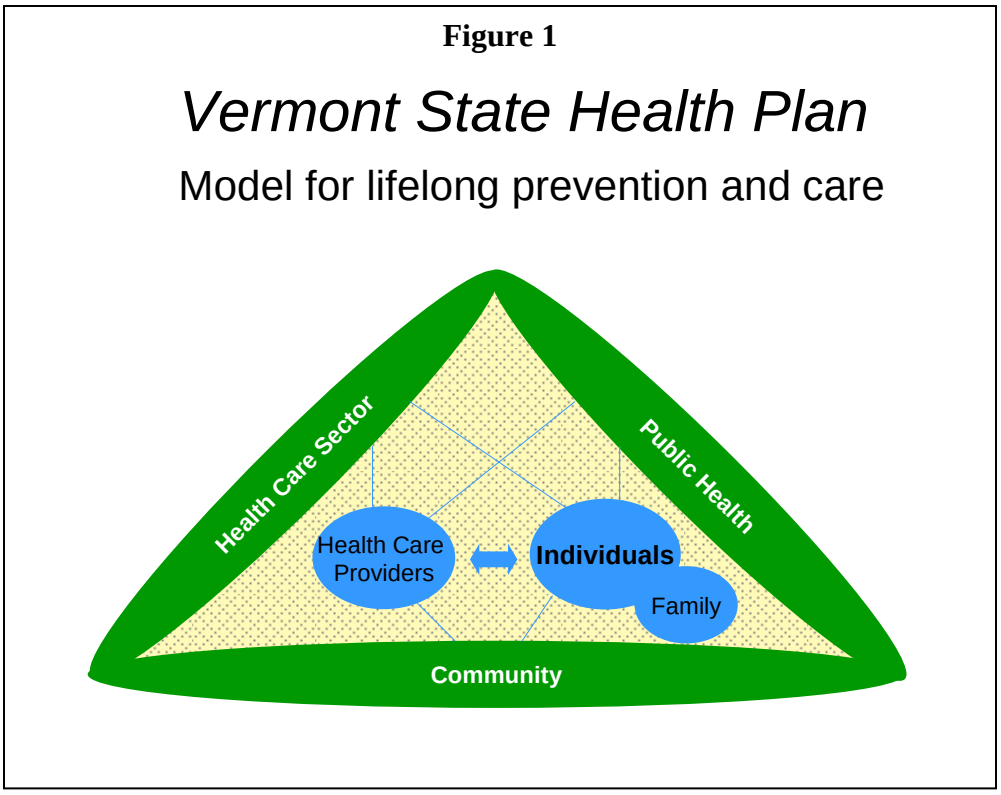
The values that guide this Vermont State Health Plan require a holistic approach to change the health care system. We can no longer afford the piecemeal approach to health that separates physical health from mental and oral health; that allows public health and health care to work in isolation from each other; that pays the same for poor care as for good; that fails to include the individual as a full partner in care; and that fails to hold organizations and individuals accountable for their failures to promote better health, provide better care, or adopt healthy behaviors.

The Vermont State Health Plan's "model for lifelong prevention and care" provides a common language and frame of reference for planning and change that will lead Vermont to a unified health system. It combines the collaborative models of public health, the chronic care model of clinical health care and the recovery model of mental health and substance dependence. The model as presented in this state health plan is applicable to the entire continuum of care from

[1] Institute of Medicine. *Quality Chasm*. Pages 2-4.

prevention and health promotion through primary care, treatment services and end-of-life care. Each sector will have greater or lesser role, depending on the issue presented, patient need or service. All, however, must be in place, aligned and supported to achieve the vision of healthy Vermonters living in healthy communities.

**Figure 1**




Central to the model (See Figure 1) are the people who receive and deliver health services. The literature consistently supports the patient-provider partnership as being essential for achieving the best health care outcomes in management of chronic conditions, with the family as an essential source of support. It is equally important in the prevention of those conditions, in decision making about long-term or end-of-life care, and in complementing the delivery of acute care services.

Three key organizational sectors facilitate (or limit) the provider-individual partnership and the overall effectiveness of health services. These are the health care sector, where policies are set and the availability and delivery of services are controlled; the community, which encompasses the people, institutions and services that provide social identity and support attitudes and behavior about health, both good and bad; and public health, which focuses on population health and is responsible for development and implementation of policies and services to prevent health problems, and to regulate, influence or support the actions of the other groups in the model.

For a well-functioning health system, a comprehensive, integrated information system that links each component of the model with all other components is essential. Health information is an essential management tool, key to effective communications, and provides the data to monitor and evaluate the performance and quality of the system as a whole.

While the model assigns entities to the various sectors based on their major contributions to the system as a whole, it is important to note that each of the entities share interest and services with other sectors of the model. Examples:

- Hospitals are major providers of community-based health services and their staffs are health care providers.
- Public health professionals facilitate community action and are providers of service to individuals in high-risk populations.
- Businesses purchase health care, but also offer worksite programs and support programs in their communities.

***Individuals and Families***

Individuals are the Vermonters whose personal habits, health beliefs and use of the health system influence their own state of health and their health care choices. Variously referred to as patients or consumers, individuals are the primary "units" that affect and are affected by the health care system as a whole. The services they receive, the choices they make and the environment in which they live have a profound impact on their health status and, in turn, on the cost of care to themselves and to society as a whole. Families are often the most powerful influence on individuals, the health choices they make, and their ability to change. Family members often assume the primary individual decision-making role on behalf of their children and others unable to exercise this role for themselves.

Traditionally, individuals have tended to seek health care only when faced with a problem not amenable to home remedies. The role of the health provider has been to "heal" the problem or alleviate the suffering associated with it. In modern society, where chronic disease is the most common problem, prevention and treatment occur primarily in the home and community. To become effective as their own care givers, individuals must become better self-care managers. This requires knowledge of the health choices that will help prevent or manage personal health conditions. It requires the skills to make those choices and implement them and the confidence to be responsible for their own care. It requires the motivation to take that responsibility, as well as the ability to cope and to solve problems inherent in implementing those changes and decisions. It also requires that the provider guide and support individuals to set and meet their personal health goals.

There are many choices that individuals must consider in light of their own beliefs and attitudes. In addition to personal behaviors and self-care management, individuals choose among alternative therapies (including no care), home care or nursing home care, and intensive treatment or palliative services. All of these individual choices require informed decision making that must be supported by the health care provider, health system and community if optimum health is to be achieved.

***Providers***

Providers are the physicians, dentists, nurses, counselors, therapists and other health care and public health professionals who work with individuals to guide, support and assist them to be healthy, and who deliver treatment and care when needed. In today's world, the role of the provider has expanded from healer to include counselor and coach. Providers need to reorient

their traditional approaches and provide patient-centered, proactive (planned) care as the norm, with collaborative goal setting and shared decision making. This requires full integration of the chronic care model into practice, including the use of evidence-based guidelines that are shared with patients, and integration of these standards of care into all processes including reminders, call backs, care management processes and coordinated care management services.

Individual providers can no longer be the sole manager for the people in their care. Preventive services and management of chronic conditions requires a team approach across the health care system and within the community. Public health and social services must be fully integrated and coordinated with the work of providers and individuals.

***Health Care Sector***

The health care sector includes the organizations and facilities that make the policies, establish outcome measures, implement procedures and provide the incentives that control what health services are available, and how health care is delivered by providers and received by individuals. The types of entities included in the health care sector are listed in Figure 2. Currently, components of the health care sector seldom function as a system; rather, they form a collection of organizations that may cooperate at times, but also likely to work independently. While the employers who purchase health insurance are not directly responsible for health care, they make the decisions regarding what options are available to employees and at what cost. Collectively these entities must create an integrated health system that promotes safe, high-quality health care.

Figure 2
**Examples of Health Care Sector Entities**

- Hospitals—Community, Mental and Veterans
- Ambulatory care clinics
- Nursing homes and other facilities
- Community mental health agencies
- Home health agencies
- Health insurance plans (including Medicare and Medicaid)
- Purchasers of health insurance (employers)
- Pharmacies

***Communities***

The term "community" encompasses the physical and cultural settings that provide individuals with identity and that support attitudes and beliefs about health and health care. Communities have a key role in ensuring the availability of structures, facilities and services that support healthy behaviors as the easiest choice, that foster healthy living and that protect individuals from harm. Community organizations are not likely to view themselves as having a role in health, it is critical that they are made aware of this role and be given the tools and support to fulfill it. Examples of community entities are shown in Figure 3.

Figure 3
**Examples of Community Entities**

- Cities, towns & neighborhoods
- Faith groups
- Race/ethnic organizations
- Social clubs and organizations
- Worksites
- Schools

***Public Health***

Public health focuses on entire populations or population sub-groups rather than individuals. Historically, public health has been primarily addressed prevention of disease and early intervention. With the increased population with chronic conditions, greater attention is now being given to prevention of complications of disease as well. The public health system has three core functions: 1) assessment of the health status of the population and identification of problems; 2) development and implementation of policies that promote good health and empower communities; and 3) ensuring that people have access to high-quality health services.

Entities that provide public health services are shown in Figure 4. This list includes some whose public health role might not be obvious, but for example, the proper design and maintenance of roads and bridges by the Agency of Transportation is a critical element of population-based injury prevention. While most are government agencies, the private sector makes significant contributions to accomplishing public health goals. A few of these key groups that address issues of access, quality and education are noted here.

Figure 4
**Examples of Public Health Entities**

- Department of Health
- Department of Environmental Conservation
- Department of Labor and Industry
- Department of Banking, Insurance, Securities and Health Care Administration
- Department of Aging and Independent Living
- Agency of Transportation
- Public Safety/Law Enforcement
- Area Health Education Centers
- Vermont Program for Quality in Health Care
- Vermont Child Health Improvement Program
- Campaign to End Child Hunger

***External Forces***

Outside of the model are powerful entities that shape health and health care in the state. Local policy makers and planners must understand these forces and use them if we are to improve the health of our people. Vermont has a wide range of businesses and services that do not fall into one of the key sectors of this model and that may support the goals of this plan, or not. Examples include restaurants, fitness centers, sporting goods retailers, pharmacies, local media, and others.

Accomplishing the goals of this plan requires the participation of this plan are Vermont's academic and research institutions that educate health workers and develop the science on which practice is based.

Probably the most important external force is the federal government, which through funding and regulation has a profound impact on access to pharmaceuticals, utilization of services, and the financial health of Vermont's health care organizations. The mass media in the United States often promotes unhealthy lifestyles without acknowledging the consequences. As such, it is a major force in determining health behaviors.

## *Individuals (Consumers, Patients)*

> *Patients must take responsibility for their own care. They should seek information from trusted sources […] to learn what kind of preventive care or treatment they should be receiving, and then work with their physicians to ensure that they get recommended care. Patients should not assume that their physicians will remember all that needs to be done. They can help their physicians provide good care by being active advocates for it.*
>
> First National Report Card on Quality of Health Care in America[2]

Outcome desired: Vermonters participate as full partners in improving personal and population health and health system outcomes by effectively managing their own health needs.

*Action needed:*

- Engage people in taking an active role in their own health care through new programs, services and incentives.
- Refocus health education to promote skills development and behavior change, not just knowledge of health and health care; use coaching, teamwork, peer support and collaboration as strategies to support healthier behaviors.
- Expand the use and scope of shared decision-making tools and other methods that help consumers make informed choices about the treatments, programs and providers that will help them the most, in light of their own values and preferences.
- Expand peer-led resource, education and support programs in chronic care, mental health and substance abuse.
- Ensure that the consumer is informed about guidelines relevant to age and condition and that the care is customized according to the individuals' needs, values and priorities.
- Provide consumers with electronic access to personal health records and with the opportunity to communicate electronically with their providers.

*Background:*

Whether engaging (or not) in a health promotion activity such as exercise, or living with a chronic disease such as asthma, an individual is managing. Indeed, "one cannot *not* manage; the only question is *how* one manages".[3] Full implementation of the model requires that individuals change how they manage their own health and how they use the health system. It requires that they become fully informed, assume responsibility for preventing ill health, share responsibility for deciding their treatment plans, and undertake the lifestyle changes necessary to prevent disease and/or reduce its complications.

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[2] Rand Corporation. *The First National Report Card on Quality of Health Care in America* May, 2004. Hhttp://www.rand.org/publications/RB/RB9053-1/H

[3] Lorig KR, Holman HR. Self-Management Education: History, Definition, Outcomes, and Mechanisms. *Annals of Behavioral Medicine.* 2003;26:1-7..

## Health Education

To maintain their health and the health of their families, people rely heavily on the health information that is available, most of it in written form. Yet, nearly half of all American adults have difficulty understanding and using health information, and at some point, most individuals will encounter health information they cannot understand. Even well-educated people with strong reading and writing skills may have trouble comprehending a medical form or doctor's instructions regarding a drug or procedure. More than 300 national studies indicate that health-related materials cannot be understood by most of the people for whom they are intended.[4]

The consequences are significant. Our health often depends on our ability to understand a set of actions needed to prevent, manage and treat disease. These skills are needed to discuss problems and care with health professionals, for understanding patient information sheets, and for using medical tools such as a thermometer or glucose meter. They are also needed to evaluate the messages emanating from the mass culture of the United States where risky behavior without risk is routinely depicted, violence is entertainment, unhealthy foods and fad diets are promoted and "quick cures" for difficult health problems are routine. The ability to understand risk, proportionality and basic science is crucial to personal decisions regarding prevention and treatment of all health conditions.

Programs of health literacy, health education, and health promotion should be developed with involvement from the people who will use them, and all such efforts must be sensitive to cultural and language preferences.[5]

## Self Care (Patient Self Management)

The literature on self care or self management focuses almost exclusively on treatment of chronic disease, including mental health problems. It does, however, provide important guidance for all proactive, planned health care, most importantly preventive care and routine primary care. There is little difference in the skills needed to change behavior to prevent chronic conditions and in those needed to control its symptoms.

Effective self care is best achieved means that people and their families understand the condition or preventive health needs, learn self management skills, know when to seek help, know how to manage medications, and avoid situations that may aggravate their condition. It requires skills in practical problem solving, confidence in using management and monitoring tools, and the ability to define and carry out the goals of the care plan. Most of all, it requires a working partnership between the provider (e.g. physician, nurse, counselor) and the individual. The focus of education must include mutual problem solving with health professionals to maintain or improve health status. And because physicians and patients do not always perceive health or disease in the same way, it is important that health professionals communicate what successful management means in terms that people understand.

[4] Institute of Medicine. *Health Literacy: A Prescription to End Confusion*. Washington DC: National Academies Press; 2004.
[5] Institute of Medicine. *Health Literacy*

There are many reasons why people may not succeed in controlling their chronic condition. Many people do not understand what is required to successfully manage their conditions. Others lack faith in their ability to do what they believe is required, or may not consider it a chronic condition at all. They may view disease episodes as acute illnesses, unrelated to an ongoing chronic disease process; or they may believe that the course of chronic illness is determined by fate rather than responsive to personal behavior. It is not uncommon for people to be overwhelmed and develop "all or nothing" attitudes about disease that prevent them from undertaking manageable moderate changes that would produce significant health improvements. Patients who have complex, difficult-to-manage conditions may require active outreach, special tools or supplies, and additional help to succeed with self-management strategies.

## Shared (Informed) Decision Making

People make health choices on a daily basis, based on their own values and preferences and often without thinking about the implications (e.g. what to have for a snack, whether to use a seat belt, when to make a doctor's appointment, when to go to the emergency room with chest pain). When they do seek medical care, they very often leave complex medical decisions to their physicians. Shared decision making is an effort to help people understand their options thoroughly and make those choices themselves.

No one treatment is right for all people. Research indicates that well-informed patients, who play a significant role in deciding how they will treat or manage their health condition, feel better about the decision process. Their decisions are more likely to match up with their own values and concerns, they are more likely to stick with the option selected, and they feel better about their health and health care as a result.[6]

## Support Systems

Whether changing behaviors to prevent disease and injury or managing a short-term or chronic condition, it is difficult for any individual to manage sustained change alone. We all live within family, community and cultural contexts that make change extremely difficult. Recognition of this is but the first step. Also required is the active support and participation of others to adopt those changes.

[6] Foundation for Informed Medical Decision Making. *Shared Decision Making*. Hhttp://www.fimdm.org/shared_decision_making.phpH

## *Providers (Workforce)*

*Outcome desired*: Health care practitioners in Vermont provide comprehensive, proactive health services and guide patients to become full partners in their own care, in an integrated, cooperative and supportive environment.

*Action needed:*

- Develop a comprehensive provider database to monitor supply of health care providers, predict needs, develop priorities and target specific actions.
- Investigate the feasibility of a coordinated workforce partnership to promote education in the health professions and manage recruitment and retention services.
- Ensure that resources are deployed and training provided so that all health professions have the opportunity to reorient their delivery of services to be more proactive.
- Ensure continued competency of providers in their chosen profession, including assistance to better provide culturally competent, patient-centered, collaborative care.

*Background:*
The health care sector employs over 41,500 people in Vermont or about 8.8 percent of all workers, making it the largest employment group in the state. Ten of the top 50 employers in the state are in health care, including hospitals and community mental health and home health agencies. In most Vermont labor market areas, health care organizations are among the top five employers. Approximately 10,350 people work in hospitals, 6,850 in nursing homes and residential care facilities and 16,100 in ambulatory care.

A well-staffed, highly skilled health professional workforce is essential to a well functioning health system. Vermont can be proud of the skill of its health services workforce. We are among the "best in the nation" on many measures of health status and health care, but we are vulnerable on many fronts. A shortage of nurses, dentists, psychiatrists and other providers means that often Vermonters go without care or receive less intensive care than they might need. The highly collaborative approach to health services envisioned in the model espoused in this plan will require changes in roles, training, practice and staffing patterns for all health professionals.

### Health Professions' Shortage

Vermont is already experiencing a shortage of key health professionals, including physicians, dentists, nurses, mental health and substance abuse counselors, and public health workers. In nursing and dentistry, a significant proportion of the existing workforce is nearing retirement age. Recruiting and retaining skilled people is difficult throughout Vermont, but is especially difficult in the rural parts of the state.

The Healthcare Workforce Development Partnership (the Partnership), a task force made up of representatives from academia, health care organizations, businesses, public health, employment department, and the legislature, has identified 20 health professions with significant problems in

recruitment and retention in Vermont. The Partnership relied on existing data for its report; as a result, it does not include many key sectors of the health workforce, including those employed in schools, mental health, and substance abuse or public health agencies. See Chapter: Data Summary, Workforce. Its report includes findings and recommendations for each of these areas.

The Partnership also reports five overarching observations, applicable to all health professionals.

- There is an inadequate understanding by youth and the general public of the career opportunities in the health professions. As a result, youth may be unaware that a career in healthcare would be well suited to their skills and aspirations.
- Non-traditional students are highly valued by employers in the health field, yet efforts to reach this population of potential workers are poorly organized.
- Data on the supply and demand (need) for the various health professions is inadequate in all respects.
- The majority of Vermont health care institutions lack adequate resources to develop and maintain comprehensive human resources departments to provide necessary recruitment and retention services.
- The health care environment is changing faster than the system can adapt, making it extremely difficult to assess the relative importance of various factors apparently impacting the demand for care, such as reimbursement policies, new treatment modalities, and the aging of the population.

An inadequate supply of key health professionals would pose a significant challenge to a more collaborative, proactive health system. A shortage of nurses, mental health counselors or substance abuse counselors would make it more difficult for them to take on expanded roles in patient education and care management. Such shortages may require a reexamination of their scopes of practice and those of other professions, and/or development of new health professions, to ensure that new service needs can be met.

## Proactive Planned Care

The model for lifelong prevention and care (Figure 1) envisions in addition to an informed, activated individual (consumer or patient), a prepared proactive provider or practice team. The two must develop a partnership to achieve improved health outcomes. This partnership also forms the foundation of the Vermont Blueprint for Health and the Chronic Care Model.[7]

The current delivery of health services has evolved to provide care for people with short-term (acute) or episodic health needs. As such, it responds well to demand for care, and is usually characterized by the physician in a leadership or healer role. Unlike acute or episodic care, prevention and management of chronic conditions requires that services be:

- proactive—provided before symptoms develop
- planned—follow an agreed to schedule with clear objectives for outcomes, visits, tests, medication, behavior change, and other interventions

[7] Institute for Chronic Illness Care. *Chronic Care Model.* Hhttp://www.improvingchroniccare.org/H

- within a continuous relationship—seeing the same primary care and other services providers over time to develop trust and understanding.

This new approach to delivery of health services requires that physicians and other health care providers have access to a range of training and support services to help redesign the clinical/office management systems; to ensure a seamless transition between primary care and specialty care providers; to develop a collaborative care model within their practices that is patient centered and empowers the patient to make effective decisions regarding their own care; and to have information systems that support the new office and care systems.

At present, there are no revenue sources to support these changes at the practice level. The health care sector, public health (government) and others must identify and deploy resources that will allow the needed changes to take place.

## Person-Centered Care

"Person-centered care" is also known as patient-centered, consumer-centered, personalized or individualized care. Person-centered is the term selected here because it is inclusive of prevention and wellness services as well as illness care. Person-centered care means that physicians, dentists, mental health and other providers treat individuals as partners, involving them in planning their health care and encouraging them to take responsibility for their own health. The old way of telling people what they need to do (and admonishing them or calling them "non-compliant" if they don't) has proven to be a failed strategy. In one study, more than half of people surveyed reported not taking their prescribed medication; the authors estimated that 6 percent of hospitalizations could be traced to "non-adherence."[8]

Person-centered care includes respect for the individual's values, preferences and expressed needs. It means providing people with information about their conditions and their options in terms that they understand; helping them to weigh their options and to participate in decision making; and guiding and supporting them in the decisions made. It is highly customized and includes cultural competence. Personalized care also attends to the individual's emotional and spiritual dimensions, to relieve uncertainty, anxiety, and fear, and to promote the support of family and friends.

## Complementary and Alternative Medicine

Surveys suggest that nearly half of the adult population in the United States use Complementary and Alternative Medicine (CAM), and that CAM use increased by 25 percent between 1990 and 1997. This increase can be expected to continue: three of 10 of people in the pre-baby-boom generation report using CAM sometime in their life compared with five out of 10 baby-boomers and seven out of 10 in the post-baby-boom generation. Among users of CAM, 87 percent report having seen a medical doctor in the previous 12 months.[9]

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[8] R Lowes. Patient-Centered Care for Better Patient Adherence. *Family Practice Management*. March 1998. Hhttp://www.aafp.org/fpm/980300fm/patient.htmlH

[9] Kessler RC, Davis RB, Foster DF, Van Rompay MI, Walters EE, Wilkey, Kaptchuk TJ, Eisenberg DM. Long-term trends in the use of complementary and alternative medical therapies in the United States. *Ann Intern Med.* 2001; 135(4):262-268.

Person-centered care requires an understanding of the patient's use of non-traditional treatments and an assessment of the benefits and potential harms that may ensue. The premises upon which the various CAM practices are based, such as nature, vitalism, science and spirituality, offer people a participatory experience of empowerment, meaning and enlarged self-identity when illness threatens their intactness and sense of connection to the world.[10] While most CAM practices have not been studied, there is evidence of effectiveness for some. There is also evidence that some therapies can have unintended consequences, when used alone or in combination with prescription drugs and other traditional therapies.

In a recent study, patients using both traditional medicine and CAM reported on their perceptions. Only 21 percent agreed with the statement that "alternative therapies are superior to conventional therapies" and 79 percent agreed that "using both conventional and alternative therapies is better than either one alone." That said, 63 percent reported that they did not disclose use of at least one of their CAM therapies when they saw their medical doctor. The most common reasons cited for non disclosure were "it was not important for the doctor to know" and "the doctor never asked."[11] This suggests that use of CAM is not due primarily to dissatisfaction with conventional medicine, and that better understanding of its use and collaboration with CAM practitioners' offers the provider of traditional care insight and opportunity to better serve his or her patient.

## Health Professions' Education

As noted throughout this document, the most important health issue as we enter the 21st Century is the prevention and management of chronic conditions. Chronic conditions account for 76 percent of all physician visits and 81 percent of in-patient stays.[12] This requires a change in the nature of care and requires a coordinated team of health providers (e.g. primary and specialty physicians, pharmacists, educators, case managers, social workers). The role of the patient is changed because it is the patient who now is the principal caregiver in treatment. The role of the physician is changed to that of guide and advisor, sharing decision-making authority and setting goals with the patient.

Education and training for health professionals must incorporate these changes. The knowledge and skills needed to help people prevent and manage disease, to accept the individual (patient) as the primary caregiver, to work as a member of a team, and to share the decision-making role, must be in the core curriculum for all health professions. Further, providers need a better grounding in the integration of population-based public health and the role of communities in clinical care. Educational programs for many of the professions already include these concepts in their programs, but far more needs to be done.

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[10]Kaptchuk TJ, Eisenberg DM. The persuasive appeal of alternative medicine. *Ann Intern Med.* 1998; 129(12); 1061-1065.

[11] Eisenberg DM, Kessler RC, Van Rompay MI, Kaptchuk TJ, Wilkey SA, Appel S, Davis RB. Perceptions about complimentary therapies relative to conventional therapies among adults who use both: results from a national survey. *Ann Intern Med*. 2001;153:344-351.

[12] Partnership for Solutions. *Chronic Conditions: Making the case for ongoing care.* Johns Hopkins University. September 2004. Hhttp://www.rwjf.org/files/research/Chronic%20Conditions%20Chartbook%209-2004.pptH

## Maintaining Competency

Vermont regulates more than three dozen occupations and professions. In many areas such as medicine, an applicant's education, competence and proficiency must be demonstrated before licensure, but continuing education is not always required, nor is competency in all cases re-evaluated when licenses are renewed. Government regulation provides a significant level of safety, but the protection is far from absolute. Incompetence or lack of training can create health risks in many professional areas, including health care.

Achieving the goal of having providers use available evidence-based standards to guide treatment decisions will require education, new tools, health information systems and other forms of support. Proven change modalities must be identified and employed.

As discussed in the information technology section of this document, the lack of practice-level administrative supports to record, collect and report information about patients and to provide feedback to physicians is a barrier to high quality health care. Fixing this problem will require major infrastructure development as well as training on the part of health care providers at all levels.

Education and training for health professionals must also incorporate cultural competency. Providers frequently need to communicate with patients with whom they do not share common languages or cultural backgrounds. Culture, ethnicity and poverty influence both providers' and patients' perceptions of health, illness, and the risks and benefits of treatments. Differences in economic, cultural and educational backgrounds between a patient and provider also contribute to problems in comprehension on the part of both parties.

## *Health Care Sector*

*Outcome desired*: Vermont health care organizations collaborate in the redesign of service delivery to ensure the efficient delivery of comprehensive, high quality prevention, treatment and care services to all Vermonters.

*Action needed:*

- Organizations within the health care sector must align their internal policies and procedures, including those related to funding, to support and ensure improved quality of care.
- Payments and other incentives must promote and reward high quality care that is consistent with evidence-based practices and good health outcomes. This effort requires the full participation of purchasers, health plans and others, and must address comprehensive prevention, screening and early intervention services for mental health, substance abuse, and oral health.
- Improve coordination among entities within the health care sector, including primary and specialty care, disease management services, and the systems by which individuals are transferred and transitioned among hospitals, long-term care facilities, treatment centers and the community.
- Ensure the availability of community-based services that support care in the most integrated, least restrictive community settings possible.

*Background:*

The health care sector is large and complex (Figure 5). Including the providers of care, health care sector makes up more than 97 percent of the total health care economy in the United States, with public health accounting for the remaining 3 percent.[13] In Vermont, health care spending totaled $2.8 billion in 2002, an increase of 10.8 percent since 1998.[14] While there is much Vermont can do to improve the system for health care in the state, there is also a large component of the industry over which the State has little control. Pharmacy regulation is the responsibility of the federal Food and Drug Administration, for example, Medicare funding is controlled by Congress, and "self insured" employers are not subject to State regulation.

Figure 5
**Examples of Health Care Sector Entities**

- Hospitals—Community, Mental and Veterans
- Ambulatory care clinics
- Nursing homes and other facilities
- Community mental health agencies
- Home health agencies
- Health insurance plans (including Medicare and Medicaid)
- Purchasers of health insurance (employers)
- Pharmacies

[13] Centers for Medicare and Medicaid Services, Office of the Actuary. *National Health Care Expenditures Projections: 2004-2014*. Hwww.cms.hhs.gov/statistics/nhe/projections-2004/proj2004.pdfH

[14] Vermont Department of Banking, Insurance, Securities and Health Care Administration. *2002 Vermont Health Care Expenditure Analysis and Forecast.* *H*http://www.bishca.state.vt.us/HcaDiv/Data_Reports/expenditure_analysis/expend_analysis_2002_initialrel.pdfH

## The Health Care System

A system is defined as a set of institutions and processes that function together to achieve defined objectives. The entities that make up health care function as a collection of organizations that often coordinate and work together, but are also likely to actively compete and/or work independently of one another. This fragmentation leads to duplication, waste, inefficiency and lost opportunity that Vermonters can ill afford. Individually and collectively, health care sector entities must begin to create a culture and develop strategies that promote safe, efficient, high quality health care. These strategies may include such things as provider incentives, the setting of measurable goals for care in the business plan, senior leaders visibly supporting improvement, the use of proven strategies for comprehensive system changes, the promoting of prevention and early intervention services through benefit packages, the open handling of errors and quality problems, and the development of agreements that facilitate care coordination within and across organizations.

## Markets and Regulation

The entities within the health care sector include private for-profit, private non-profit and public organizations. Some, such as hospitals and health insurers, are highly regulated; others, such as ambulatory care services, have little or no regulation. Some market sectors, such as pharmacies, are highly competitive, while entities such as community mental health and home health agencies have virtually no competition. With the exception of more urban locations, effective competition does not exist in much of the state.

Government plays a major role as insurer for low-income and elderly individuals through the Medicaid and Medicare programs. The extent to which regulation and/or competition contribute to the overall cost of, and access to, health care is the subject of much debate. In general however, the Vermont population is probably too small and too rural to sustain a competitive market among larger health institutions.

Unlike other markets, the health care market must ensure the continued availability of services that have a low return on investment or even operate at a loss, and must provide services to those who cannot afford them. Future laws and regulations designed to control costs and expand access to health care must take into account the need to share this burden.

## Cost Control

In our society, high value is placed on the market economy and market solutions to problems. Yet, those values are directly in conflict with the values of equity, quality and accessibility to the full range of health care services for everyone. If selling flu vaccine were profitable, there would be no shortage of companies manufacturing and distributing it and the loss of one manufacturer would be a minor event. As it is, this life-saving strategy represents yet another high-cost, low-volume item, needed only once a year, and with up to 20 percent of the supply discarded each year because of low demand. Without the social and health imperative, it is doubtful that flu vaccine would be available at all.

With our reliance on employers to provide health and dental insurance, the customer/patient has little to say about priorities or preferences, and even less incentive to “invest” his or her effort in

strategies to reduce costs. Work must be done to empower and involve consumers in taking a more active role in their own care.

We also place high value on preventive services, but are unwilling to cover the expense, in part because the return on investment may not be realized for years, and sometimes decades. The physician who provides top quality care is paid at the same rate as the one who provides substandard care. The cost of improving care is borne by one entity, the reward accrues to another. Realignment of the incentives for providing and paying for preventive care and for higher quality care will be needed to effect real change in the system.

There are several factors at work that can be expected to significantly increase the demand for free, low-cost and/or subsidized services for Vermonters. These include an increasing number of businesses offering higher cost or higher co-pay insurance plans, or no health or dental insurance at all. They also include private providers limiting their participation in the Medicare and Medicaid programs as reimbursement rates are reduced in response to increasing costs.

A comprehensive approach to cost containment that increases the value generated by expenditures across all entities is essential. In the long run, effective cost management will require more and better information, a commitment to improved quality, a greater emphasis on prevention services, consumer commitment, and community support. It will also require a concerted effort to identify and eliminate waste in the delivery and administration of health care. In the shorter term, attention to areas of high utilization and high cost, such as emergency department use, chronic disease care and avoidable hospitalizations, should be targeted for improvement. An examination of the revenue streams and pricing policies that impact total costs is also required, so that essential services are available to all.

## *Communities*

*Outcome desired:* Communities dedicate themselves to ensuring that the health of their members is of primary concern and that the healthy choice becomes the easiest and most acceptable choice in all aspects of community life from infrastructure design to individual support services.

*Action needed:*

- Adopt safety from injury, protection of the environment, and promotion of physical activity as criteria by which community transportation and development decisions will be made.
- Improve knowledge and understanding of health, health care and the role of the consumer through programs in schools, worksites, businesses and other community entities.
- Make available, within each community, services, programs and policies that promote and support wellness and reduce the likelihood of disease or injury. Examples: after-school programs; workplace safety programs; healthy food choices; alcohol-free events in public places; programs to prevent intimate partner violence, suicide and elder falls; and outreach to people in need.
- Make available, within each community, services, programs and policies that expand on and support the services of health providers, public health and the health care sector. Examples: outreach and job services for people with substance abuse or mental health problems, support groups for people with chronic conditions, family respite programs, and resource and referral services.
- Develop safe housing for people transitioning back from residential substance abuse or mental health care and from incarceration; adhere to policies that maximize housing opportunities for individuals with mental health and/or substance abuse issues and with mobility and other health-related limitations.
- Engage community members in the development of the local health care infrastructure and in the design of prevention and treatment services.

*Background:*
Achieving the goal of enabling Vermonters to lead healthy lives in healthy communities depends upon the willingness of individuals to take charge of their own health, but it also depends upon this taking place within in the context of active community participation. If the health of Vermonters is to be improved, it is imperative that communities understand their powerful position in promoting, supporting and protecting their members and colleagues.

Public health in Vermont has historically sought out opportunities to enhance community coordination in its response to public health needs. State and community coalitions have become the most common way to address a wide variety of issues such as access to care, improving birth outcomes and breastfeeding rates, and preventing child abuse and domestic violence. With respect to mental health and substance abuse, Vermont has a commitment to the use and further development of community-based care, supporting the most integrated community settings and

the least restrictive alternatives for care through access to affordable housing and to a full range of community-based treatment and support options.

## Community Support Services

Communities have a profound effect on public health. Individual behaviors and beliefs are to a large extent shaped by the communities in which people live, work and play, and which provide them with social identity and support. They are also the points of convergence for the interests of employers and businesses, the messages of the news and entertainment media, and the services of governmental public health agencies and the health care delivery system. The power of the community to support healthier behavior has been demonstrated in the decreased tolerance for drunken driving, smoking in public places, and in other matters. Similar changes in community attitudes can lead to healthier eating, earlier prenatal services, higher breast feeding rates, reduced access to illegal drugs and greater acceptance of people with mental health problems, to name only a few examples.

Figure 6
**Examples of Community Entities**

- Cities, towns, neighborhoods
- Faith groups
- Race/ethnic organizations
- Social clubs and organizations
- Worksites
- Schools

Community support also can have a significant effect on the speed with which individuals recover from illness, surgery or injury. The presence or absence of community support often contributes to the success or failure of an individual's efforts to adopt healthy behaviors or cope with chronic disease. "Support" may simply be community awareness of the nature of a disease and the understanding that people with chronic conditions can lead healthy lives. Support includes providing accommodations such as a space for a breastfeeding mother, seating for the handicapped or signers at town meeting. Support can be experienced as an educational program targeted to people with a particular disease to help them learn specific skills to better manage their condition.

The spectrum of community influence is virtually limitless. It may include increasing the nutritional quality of meals served at church suppers or in the worksite cafeteria. It determines municipal and club smoking policies. It can build sidewalks and trails that encourage exercise, or transitional housing for the mentally ill, recovering substance users or parolees at risk of substance abuse relapse. It staffs teen social centers that offer teens healthy alternatives. Community influence can support an open dialog to explore attitudes about end-of-life care, to model healthy roles for youth, or to link businesses and health programs. It sets school health policies and education, creates clinics for the uninsured, and sponsors classes and support groups for tobacco cessation or weight control.

Community support must be culturally, racially and ethnically sensitive to be effective. Outreach efforts often are income sensitive and must address the cultural identity of those who experience generational poverty. Individuals who are socially marginalized by gender or by minority racial, ethnic or sexual identification are often inadvertently left out of programs intentionally designed to reach the greatest number of people. Such programs tend to target the majority, reinforcing access problems for minorities.

Community-based services are essential to creating a supportive environment for improving health behaviors, yet health care providers and community leaders in our society tend to work independently of each other. Using the model (Figure 1), communities will be enlisted to offer a range of programs, services and infrastructure to enable people to lead healthier lives.

## Infrastructure and Policies

Communities also exert significant influence over the health of their citizens in the design of the community, in the decisions of the zoning board or the recreation department, and in other aspects of the environment. Efforts to promote physical activity are enhanced by sidewalks, trails and safe cross-walks. When stores are within walking distance of home, people are more likely to walk. The presence of a local farmers' market can promote the eating of more fresh fruits and vegetables.

As communities grow and spread beyond urban areas, most planning and design has taken place with too little regard to health. Attributes of the built environment and community design have a significant impact on social well-being and community engagement. Poor community design can isolate people, leading to a diminished sense of community and can contribute to distrust and detachment, which in turn can produce stress, one of the risk factors for many types of disease. Known implications on health that are associated with land use and development include air and water quality, sanitation, rates of physical activity, bicycle and pedestrian injuries, mobility and quality of life for elderly and disabled residents and mental health and social well-being.

Communities can make choices affecting the built environment that promote healthy behaviors. Regional and town planners can encourage safe streets and sidewalks or clearly marked bike/pedestrian lanes on rural roads. Commercial and public buildings can be designed to include easily accessible stairways, and signs can be added to promote stair use and encourage greater lifestyle physical activity. Promoting alternative modes of transportation and creating incentives to walking and biking can reduce air pollution and increase activity rates. Vermont's Act 250 and related laws have done a good job of protecting Vermont's air and water quality, and they provide for a review of transportation and other issues, but more can be done.

For people with special needs, welcoming attitudes and community support for special housing can greatly enhance their ability to lead healthier lives. Lack of safe and accessible housing can hasten the onset of illness or relapse for individuals with mobility limitations, people with mental health issues, people in recovery from substance abuse, and anyone with a chronic condition.

While almost all health care treatment and prevention efforts benefit from community support, some problems cannot be effectively addressed except at the community level. Several examples are outlined elsewhere in this document, including the prevention of suicide, intimate partner violence, and injuries related to falls by the elderly, to name just a few.

## *Public Health*

> *The success or failure of any government in the final analysis must be measured by the well-being of its citizens. Nothing can be more important to a state than its public health; the state's paramount concern should be the health of its people.*
>
> Franklin Delano Roosevelt

*Outcome desired*: Public health organizations collaborate in the redesign of a comprehensive, integrated health system to ensure availability of high quality prevention and treatment services in communities and health care.

*Action needed:*

- Ensure that laws, regulations, public programs and public financing support the goals of this plan.
- Ensure that public health organizations have the capacity to carry out the core functions of assessment, policy development and quality assurance necessary to prevent disease and disability.
- Develop and fund a comprehensive array of prevention programs and services that inform, motivate and enable people to take action regarding their own health and their use of health care services.
- Put comprehensive systems in place to detect and respond appropriately to infectious disease events of importance to the public's health, be they single cases, outbreaks, or acts of terrorism.
- Implement information systems that will include specifications for reporting data needed by public health to monitor health status, evaluate performance of the health care sector, identify new and emerging issues, and redirect resources to problem areas.

*Background:*
Unlike health care, which usually provides services to one person at a time, public health is primarily concerned with the health of the population as a whole, or of specific sub-sets of the population. Public health services are less visible and often more difficult to understand than medical services. The most common tools of public health are education, systems development, sanitation and regulation. Its approach is chiefly preventive and highly collaborative in nature.

Figure 7
**Examples of Public Health Entities**

- Department of Health
- Department of Environmental Control
- Department of Labor and Industry
- Department of Banking, Insurance, Securities and Health Care Administration
- Department of Aging and Independent Living
- Agency of Transportation
- Public Safety/Law Enforcement
- Area Health Education Centers
- Vermont Program for Quality in Health Care
- Vermont Child Health Improvement Program
- Campaign to End Child Hunger

Most public health services in Vermont are provided by the Vermont Department of Health. It is important to note that other government agencies have key responsibility for promoting and protecting the health of the public, and that private organizations also have public health functions. The Area Health Education Centers of the University of Vermont, College of Medicine, provide an array of services including workforce development and community services. The Vermont Campaign to End Child Hunger works to ensure access to adequate healthy food. The Vermont Program for Quality in Health Care and the Vermont Child Health Improvement Program work to assure the availability of high quality health services.

The greatest public health success in the 20th Century was the control of infectious disease through improved sanitation, food and water safety, immunization, antibiotics and other strategies. Significant strides were also made in reducing disability and deaths from injury with improvements in automobile and road design, consumer product safety, worksite safety, and the use of helmets and other safety devices.

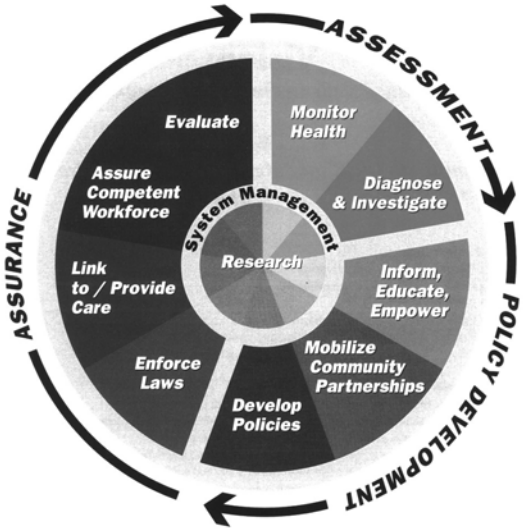
The need for public health interventions to reduce the disability and death associated with chronic diseases was not widely recognized until the late 1960s, with the publication of the U.S. Surgeon General's report on tobacco. Since then, the increased prevalence of chronic disease, identification of environmental carcinogens, studies showing the importance of physical activity to health, the increased prevalence of obesity and other factors have further reinforced the importance of the public health approach in chronic disease.

## Public Health Functions and Services

The mission of public health is accomplished in three broad functional areas, and 10 services as illustrated in Figure 8. The functional areas are shown outside the wheel and include:

- Assessment is the process of determining where and when public health threats occur. It includes monitoring indicators of health status, diagnosis of problems and dissemination of information about the health of the population.
- Policy development uses the assessment data to consider alternatives and set priorities for action. It includes informing, educating and empowering people, mobilizing community partnerships and development of policies and plans to address health issues.
- Assurance involves seeing that policies are carried out and includes enforcement of laws and regulations, linking people with high quality services, ensuring a competent workforce, and evaluation of the effectiveness, accessibility and quality of health services.

Figure 8
**Function and Services of Public Health**



- Research is the sound science and strong evidence base that guides all public health services. Implementation of services relies on systems management techniques.

## Public Health as an Investment

It is estimated that 70 percent of premature mortality could be prevented by reducing risky behaviors and environmental threats.[15] The cost of many public health prevention services is far less than the cost of the treatment that would be needed:

- The cost of water fluoridation for an individual's entire lifetime (about $38) is about the same as the cost of treating just one tooth with one cavity.
- Each dollar spent on helping a pregnant woman stop smoking saves about $6 in intensive hospital costs and long-term care for low birth weight babies.
- Each year public health outreach and vaccines have prevented nearly 7 million cases of measles, mumps and rubella, saving $14 in medical care costs for every dollar spent immunizing children.[16]

An effective public health system requires the collaborative effort of a complex network of people and organizations in the public and private sectors, as well as the alignment of policy and practice of governmental public health agencies. For governments to accomplish their goals, policy makers must provide the political and financial support for strong and effective government public health agencies.

Governments act in several areas to improve population health. These include policy making, financing, public health protection, collecting and disseminating information about health and health care, capacity building and direct management of services. The legislature is responsible for creating the policies and allocating resources needed for implementation. The executive branch, through the official public health agency and other departments, acts within the scope of legislative authority to implement and enforce those policies.

## Response to Infectious Disease Events

One of the major and long-standing roles of the public health system has been the detection of and response to infectious disease events. These events can be single cases of infectious diseases, some of which are highly communicable and can have very serious outcomes (e.g. measles). These can also be outbreaks of infectious diseases that affect large numbers of people, where prompt recognition of the cause can prevent additional illness. More recently, these events have included acts of bioterrorism, where mail was deliberately contaminated with the anthrax bacteria. Finally, newly identified diseases such as SARS, West Nile or Monkey Pox, often require new and innovative approaches to prevention and control.

To ensure there continue to be systems in place to respond to these infectious disease events, resources must be continually directed to the following activities:

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[15] State of Washington Department of Health *Public Health Improvement Partnership*. Page 19. Hhttp://www.doh.wa.gov/PHIP/default.htmH

[16] State of Washington. Page 4.

- Disease diagnosis: Health care providers need up-to-date information as well as high-quality and reliable tests to aide in their diagnoses of diseases.
- Disease surveillance: Health care providers and public health professionals need appropriately redundant systems in order to monitor the occurrence of infectious diseases and to be alerted to these in a timely manner.
- Prevention and control: The public health system needs to have knowledgeable and skilled personnel who are able to respond quickly and effectively to infectious disease events.

## Collaboration with the Health Care and Communities

Public health efforts have long depended on the health care establishment and health providers to implement key prevention services, most commonly related to infectious disease, whereby providers give immunizations and report significant infectious disease events to the Department of Health. The two often share responsibility for treatment services for highly infectious conditions such as tuberculosis and sexually transmitted disease. Since the 1960s, government has assured accessibility to health care services by purchasing care for high-need populations through the Medicare and Medicaid programs, community mental health agencies, alcohol and drug treatment programs, and other programs.

Likewise, public health has worked closely with community organizations to protect health and prevent disease. Community water fluoridation, immunization clinics, school health, regional partnerships and HIV prevention projects are examples of such community work. In Vermont, much community work has been done through Department of Health district offices, through other departments of the Agency of Human Services, and through contract agencies such as Planned Parenthood of Northern New England, home health agencies, the Area Offices on Aging and community mental health agencies. In addition to direct grants for service, the Health Department has provided training, grants and other support services to numerous local agencies.

# Vermont State Health Plan
# 2005

## Part 3: Key Policy Areas

## *Prevention as a Priority*

> *"Since both in importance and in time, health precedes disease, we ought to consider first how health may be preserved, and then how one may best cure disease."*
>
> Galen, circa 130-200 AD

*Outcome desired:* Services to prevent the onset of disease or injury and minimize its effects will be given highest priority in development of policies and plans and for funding in Vermont.

*Action needed:*

- Enact policies to ensure that all Vermonters receive evidence-based clinical preventive services as recommended by the U.S. Clinical Preventive Services Task Force and other authorities.
- Link community-based prevention and support services with services offered by health providers and others.
- Promote the use of prevention services and the adoption of healthy behaviors by Vermonters through information, skills development, incentives and other support services.
- Implement effective population-based public health prevention efforts, including promotion of healthy behaviors and risk reduction, environmental protection, and development of community-based programs.

*Background*

Promoting and preserving good health and preventing disease is so obviously important that few would disagree that they should be the focus of any health care system. Yet the demands of treating illness and disability have consistently crowded out prevention, and Vermont's investment in prevention continues to be relatively low. In 200Vermont was ranked 23rd among all states in percent of dollars spent on public health and also 23rd on per capita spending on public health.[1]

The goals of prevention are to forestall illness, to decrease the incidence of disease and premature death, to reduce suffering, and to save money. The success of prevention has been well documented in the areas of immunization, sanitation, workplace safety and dental disease, among others. We have been far less successful in preventing chronic disease or the consequences of chronic disease, mental health problems, alcohol and drug dependency, or poor pregnancy outcomes.

There is a strong economic argument for investing in prevention: good health costs less. A report of the Joint Fiscal Office of the Vermont Legislature issued in 2000 illustrates the rising of

[1] United Health Foundation. *America's Health: State Health Rankings—2004 Edition.* Hhttp://www.unitedhealthfoundation.org/shr2004/states/Vermont.htmlH

health care costs with increasing severity of illness. Seventy percent of the population uses barely 10 percent of health care resources, while the sickest 10 percent of the population account for more than 75 percent of total costs.[2] Data from nine physician organizations confirm this. Mean medical costs for individuals without disease are about $1100 per year; with one chronic disease, costs rise to $4100 per year; and with three chronic diseases, costs are $7200 per year.[3] Prevention strategies that lead to reductions in the number of people with a chronic disease and the number with complications of chronic diseases can mitigate the increase in costs that can be anticipated with the aging of the baby boomers.

## Risk Factors

The key to prevention of disease and disability is the identification of, and the avoidance, elimination or mitigation of, risk factors, the specific precursors that are associated with certain illnesses and injuries. The causal relationship between a risk factor (or a series of risk factors) and a negative health outcome is sometimes easily demonstrated. Obesity, for example, is associated with a higher risk of diabetes, and the use of seat belts and lower speed with reduced motor vehicle crash fatalities. In other cases, the relationship may be too complex to accurately describe in terms of cause and effect, especially when more than one condition is present. Stress, for example, simultaneously can be both a contributing cause and an effect of disease. In all cases, however, a risk factor is identified by its statistical association with a negative outcome.

Some risk factors can be modified, while others, such as gender, age and genetics, cannot be changed. In cases where one or more non-modifiable factors increase risk, however, the diminishment of other risk factors increases in importance.

At the individual level, the identification of risk factors helps one choose the best course of action under the circumstances. At the population level, knowledge of risk factors helps public health officials develop responsive policies and programs, target specific high-risk groups or behaviors, and to better allocate resources to reduce or eliminate the risk. Chronic diseases, for instance, are more common as people age, HIV/AIDS is more prevalent among men who have male sex partners, and Hepatitis C is disproportionately high among intravenous drug users.

## Personal Attributes and Social Environment

The concept of resiliency refers to the ability to bounce back from an adverse experience and to avoid long-term negative effects. It refers to an individual's ability to recover and grow and succeed in the midst of the stressors encountered in life. This concept can also be applied to families and communities. Researchers and community leaders are now focusing efforts to defining and measuring assets to more effectively incorporate resiliency in programs.

Historically, population behavior has been measured by defining risk and measuring risk-taking behavior among subgroups (e.g. teen pregnancy rates or rates of incarcerated youth). Once

[2] Vermont State Legislature, Joint Fiscal Office. Montpelier, VT 2000.
[3] Rundall TG, Shortell SM, Wang MC, Casalino L, Bodenheimer T, Gillies RR, Schmittdiel JA, Oswald N, Robinson JC. *As good as it gets? Chronic care management in nine leading US physician organizations. BMJ* 2002; 325:598-61.

defined, community and institutional programs were developed to reduce the risks. A resiliency approach starts from an opposite view whereby strengths or assets are identified and used to develop interventions that promote and support strengths and the wherewithal for individuals and communities to be healthy.

In Vermont, the Search Institute's 40 Developmental Assets are being developed into specific questions for the Youth Risk Behavior Survey (YRBS).[4,5] In the most recent YRBS, students were asked about the nature of positive influences in their lives: grades in school, talking with parents about school, representation in school decision-making, participation in youth programs, volunteering in the community, and feeling valued by the community. Analysis indicated an inverse relationship between the number of reported risk-taking behaviors and the health promoting assets. For example, the more assets a student reported, the less likely he or she was to report certain risk taking behaviors such as poor nutrition, sexual activity, or drug use. Research such as this begins to point the way for policy makers and community organizations to design programs for increasing support for teen assets rather than strictly focusing on reducing risk-taking behavior. A list of the 40 Assets is included in Appendix D.

The social and economic environment is also associated with risks to health and greatly complicates interventions to prevent disease. Poverty is a risk factor for many physical and emotional problems, and hunger among children can have many negative outcomes on health and learning. However, even those with adequate incomes are subjected to many pressures to make unhealthy choices.

The news and entertainment media may exert the strongest influence on health through advertising and programming that promotes, or at least supports, the idea of risky behaviors without consequence. Fast cars, unprotected sex, smoking, substance use, unhealthy food, and sedentary lifestyles are depicted as glamorous and desirable, or at least normal and safe.

Economic considerations tend to take precedence over health decisions throughout our culture. For a variety of reasons including packaging costs, for example, larger food portion sizes are a better business decision than smaller ones. Recreational vehicles are seen as contributing to the economy while walking paths are viewed as costs. The built environment accommodates the people's need for cars, but not for adequate exercise. Prevention strategies are more typically viewed as costs rather than investments. At the same time, society's support for healthy behaviors can have a large impact on the health of the population: where non-smoking is supported, fewer people smoke; in communities that focus on supporting youth, more choose to avoid alcohol, drugs and other unhealthy behaviors.

## Physical Environment

Of those risk factors that can be changed, some, such as regional air and water pollution, require public policy solutions and typically cannot be changed by a single individual, acting alone, although social solutions often depend upon collective power of individual actions. Site-specific

[4] Search Institute. *Developmental Assets.* Hhttp://www.search-institute.org/assets/H
[5] Murphey, et al. Relationship of a Brief Measure of Youth Assets to Health Promotion and Risk Behaviors. *Journal of Adolescent Health*. 2004;34;184-191.

air and water quality problems are usually addressed on an individual basis, however, and many simple steps can be taken to lessen the environmental health risks within a home.

Drinking water contaminants are a common and easily addressed risk factor for gastrointestinal illness caused by bacteria and for systemic disease or cancer caused by chemicals. Most drinking water, even when contaminants are found in elevated levels, is treatable. However, the water must be tested appropriately to find potential contaminants of concern. In Vermont, better surveillance is needed to target geographic areas and sensitive sub-populations in connection with water quality concerns. There currently is no official mapping of test results that would reveal a community or neighborhood problem over the course of time. The use of geographic mapping tools to identify areas of the state that have elevated levels of contaminants would allow better outreach in these areas to notify the public of hazards.

Childhood lead poisoning, a healthy homes issue, is almost entirely the result of avoidable risk factors. Old lead-based paint still is common in Vermont, which has the second oldest housing stock in the country. Many older houses are the source of lead dust due to deteriorating paint or to the sanding and sawing associated with renovation projects. Lead dust may be picked up from surfaces that children touch, may cling to their hands and toys, and eventually may be inhaled or ingested. Exposure to even small amounts of lead can adversely affect a child's growth and development and directly damage the kidneys and central nervous system. Small children are particularly susceptible to exposure risks, which makes lead screening of young children especially important. Despite the age of Vermont's housing stock, in 2003, only 68 percent of Vermont 1 year olds and 19 percent of 2 year olds were tested for lead. Of those tested, 3.9 percent of 1 year olds and 6.2 percent of 2 year olds had elevated blood lead levels. The U.S. Centers for Disease Control and Prevention has recommended that all children be tested at one and two years of age.

For those who work with disruptive clients, with machinery, and with biological and similar hazards, occupational risks can include assault and accidental injury. Some categories of workplace safety, such as those related to factories, mines and the construction trades, are under government safety regulations, while others, such as farming, have few such regulations. Farming is a particularly hazardous occupation, with risks that include machinery and animal-related injuries as well as respiratory risks associated with air-borne particles such as hay chaff and with oxygen-depleted silos.

Occupational exposure to both lead and asbestos can occur by breathing contaminated air, usually in workplaces that make or use the substances or on construction jobs involving the renovation or demolition of old buildings. Improper practices with these materials increase exposure risks. Asbestos exposure can cause serious lung problems and cancer; lead exposure can cause numerous health problems, including those noted above.

The causes of asthma are not fully known, but New England has higher prevalence rates than other parts of the country, for both children and adults. Studies linking air quality and hospitalization and emergency department visits for asthma and other respiratory conditions suggest that geographic locale and prevailing wind patterns that bring mid-western industrial emissions may be responsible. Evidence suggests that environmental factors such as air pollution

and exposure to tobacco smoke, chemicals, irritants, fungi and molds, indoors and out, can exacerbate existing asthma and may cause it to develop. Surveillance data suggest that the very young and the very old are especially at risk for poorly controlled asthma. Asthma-related hospitalization rates tend to be higher and length of stay longer for people at the end stages of the life cycle. See Appendix B, Vermont Asthma Prevention Plan.

## Community Preventive Services

There are a wide range of services that have been identified as effective strategies to prevent disease at the population and community levels. The guide to Community Preventative Services[6] provides a systematic review of evidence-based interventions for preventive services. Following a thorough review of the literature, the guide makes specific recommendations for interventions based on the effectiveness and feasibility of population-based interventions.

The Community Preventive Services guidelines for tobacco control, physical activity, cancer, diabetes management, and others provide evidence-based strategies for effective community interventions. For example, for physical activity there is strong evidence for community-wide campaigns using signs and other cues to remind people of the benefit of exercise; behavioral change programs tailored to a person's readiness to change; programs that strengthen social networks such as walking groups; and environmental changes that increase access to places conducive to physical activity.

## Clinical Preventive Services

Clinical preventive services are services known to prevent disease, reduce risk, or identify conditions early. These services are the "second line of defense," after health behavior and environmental protection, to prevent disease and the consequences of disease. The U.S. Preventive Services Task Force (the Task Force) has made recommendations regarding more than 55 screening tests. [7] These screenings, including newborn metabolic screening, cholesterol screening, mammograms, colorectal cancer screening and many others, have been demonstrated to be effective in reducing morbidity, mortality and the cost of later treatment. Most insurance companies have added many of these tests to their list of covered services. Any remaining barriers to obtaining these services need to be identified and eliminated. Public education and provider counseling must reinforce the importance of having the tests and strategies implemented to ensure that people without insurance benefit from these important services.

Immunization is a critical preventive service for both children and adults. Vermont leads the nation with almost 90 percent of all children fully immunized when they enter school, although this falls short of our goal to fully immunize 98 percent. The Department of Health's new immunization registry system will make it easier to identify under-immunized children, and to reach out to families and reduce barriers. Vermont does less well in ensuring that high risk adults and children are immunized against flu and pneumonia. Only 65.3 percent of people over

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[6] U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. *The Community Guide*. Hhttp://www.thecommunityguide.org/default.htmH

[7] U.S. Preventive Services Task Force. *Guide to Clinical Preventive Services*. 3rd Edition. Hhttp://www.ahrq.gov/clinic/cps3dix.htmH

age 65, one of the high risk groups, have ever been immunized for pneumonia, and only 73.7 percent report they have had a flu shot in the last year. In 2004, yet another barrier to adequate flu immunization has been identified: an extremely precarious manufacture and supply system. Vermont cannot control the U.S. Food and Drug Administration approval process, but a more coordinated approach to flu immunization, as was necessary in 2004, may be needed to assure that those most at risk are immunized each year.

The Task Force reviewed 15 areas where counseling has been suggested as an intervention strategy and found sufficient evidence to recommend it in six. In the others, they found insufficient evidence to make a recommendation one way or another. Counseling about tobacco use, HIV prevention, household and motor vehicle injury prevention, alcohol use and prevention of unintended pregnancy are all recommended counseling services.

Chemoprevention, the use of a specific nutrient or medication to prevent disorders, has been demonstrated to be effective in reducing the incidence of many diseases. With nutrients, this is most often accomplished by fortifying the food or water supply to ensure an adequate dose for the population. Prominent examples include Vitamin D in milk to prevent rickets, iodine in salt to prevent goiter, fluoride in water to prevent tooth decay, and folate in flour to prevent certain birth defects. When access to these population-based public health measures is inadequate, as when people use a private well or drink milk from their own farms, a supplement may be needed. Aspirin to reduce the risk for cardiovascular events in people at high risk of disease is recommended by the Task Force.

## Preventing Adverse Consequences

Preventing disease before it begins is the best investment, but there also is ample evidence that improving care of people who already have illness can improve health outcomes, prevent or slow the progression of disease, and reduce costs. The standards of care that will accomplish these aims are generally well known, but the systems to ensure that providers and patients know and use them are rudimentary at best; on average, the standards are met only about half of the time. In all cases, the best results are achieved when there is a significant effort to help patients develop self-management skills to modify their own behavior. Intensive treatment of people with diabetes, for example, has been shown to reduce vascular complications affecting eyes, kidneys and nerves, typically seen in people with diabetes whose blood glucose levels are not well controlled.[8] For people with mild or stage 1 high blood pressure and additional cardiovascular risk factors, it is estimated that achieving a sustained 12 mmHg reduction of systolic blood pressure over 10 years will prevent one death for every 11 patients treated.[9]

[8] The Diabetes Control and Complications Trial Research Group. The effect of intensive treatment of diabetes on development and progression of long-term complications in insulin-dependent diabetes mellitus. *N Engl J Med.* 1993; 329:977-986.

[9] Ogden LG, He J, Lydick E, Welton PK. Long-term absolute benefit of lowering blood pressure in hypertensive patients according to the JNC VI risk stratification. *Hypertension* 2000; 35:539-43.

## *Access to Care*

*Outcome desired:* All Vermonters have the opportunity to participate in the full range of prevention, treatment and care services.

*Action needed:*

- Provide a strong safety net for the uninsured and underinsured, including physical, mental and oral health services.
- Ensure culturally appropriate health care to minorities, immigrants, low-income and other high risk populations.
- Develop a sustainable, comprehensive strategy to ensure adequate health insurance coverage for the uninsured and those currently insured through the programs of the Vermont Office of Health Access.

*Background:*
In 2002, 84 percent of Vermonters said that a high priority for government should be to ensure that people get the health care they need.[10] Addressing that value requires that the problem of availability of adequate insurance coverage be addressed, but also requires attention to other contributing factors such as poverty, adequacy of the supply of health service providers, cultural competency, community support for transportation and the location of essential services within communities. It is also critical to address the quality, effectiveness and efficiency of the health system as a whole in preventing and treating disease and disability. Such efforts can free up resources that can then be used to expand health services to others.

Vermont is one of the most rural states in the nation with nearly three-quarters of residents living in rural communities. Adults living in rural areas in America are more likely than urban residents to be in fair or poor health; they are older, average fewer physician visits per year, are more likely to suffer traumatic injuries, are more likely to commit suicide and have higher rates of alcoholism as compared to their urban counterparts.[11]

## Health Insurance

Participation in a health insurance plan is commonly accepted as the most important measure of access to health care. In Vermont in 2002, 10 percent of residents were without health insurance, up from 8.1 percent in 1999.[12] The proportion of people with private insurance fell during this period from 62.3 percent to 58.6 percent. In addition, reports indicate that the cost of insurance premiums and deductibles are rising and/or coverage is being limited for those who continue to be insured.

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[10] Commission on the Public's Health Care Values and Priorities. *Hard Choices in Health Care 2002: What Vermonters are thinking*. Hhttp://www.bishca.state.vt.us/HcaDiv/second_rep_comm_on_PHCVP%20.pdfH
[11] Agency for Healthcare Research and Quality, Rockville (MD). *Focus on Research: Rural Health Care*. AHRQ Publication No. 02-M015, March 2002..
[12] Dept of Banking [ ] Health Care Administration. *2002 Expenditure Analysis.*

Health insurance as a benefit of employment presents special problems in Vermont where more than 66 percent of employers have fewer than 10 workers. Smaller companies are less likely to offer health insurance than larger firms. In 2000, 84 percent of those who were uninsured were either wage earners or the dependents of wage earners.[13]

Vermont can be proud of the relatively low proportion of people who are uninsured. By expanding the Medicaid program, we have covered most children with family incomes of less than 300 percent of the poverty level and pregnant women up to 225 percent of the poverty level. Coverage has been expanded to include many more low-income residents of all ages. However, the cost of these improvements, coupled with changes in federal Medicaid reimbursement policies, is that Vermont now faces an unsustainable level of State spending, increased cost shift to private pay residents, more restriction on acceptance of Medicaid as a payment source by physicians and dentists. Reaching the last 10 percent of uninsured, slowing the rise in uninsured, and stabilizing funding for the Medicaid program are all essential and present enormous challenges that are beyond the scope of this plan. The Vermont Legislature and Coalition 21 (a Vermont stakeholder organization working to identify solutions to Vermont's health systems problems) are examining the possibilities and will be making recommendations.

## Cultural Competency

For minority and immigrant Vermonters, access to health services is both an issue of payment and an issue of finding a practitioner who understands their language, culture and special needs. Access for this population further depends on the willingness of health care and providers to adapt services to meet those needs. While the prevalence of health problems vary within minority groups and between them, in general minorities in the U.S. are more likely to report being in fair or poor health, and not seeing a doctor because of cost; they have higher rates of chronic disease; and are more likely to report risky behaviors such as use of cigarettes, and low levels of physical activity and fruit and vegetable consumption.[14]

Helping minority Vermonters improve their health requires all of the service, quality and access changes noted in this plan. It also requires attention to their special cultural needs. Cultural competence in health care is defined as the ability to provide care in ways that consider and support the culture of the individual without being unduly biased by one's own attitudes, behavior and culture. Cultural competence requires awareness of one's own cultural experience, demonstrating understanding of another's culture, accepting and respecting cultural differences and adapting care to be congruent with the client's culture. It is a conscious process and integral to patient care.

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[13] Dept of Banking [ ] Health Care Administration. Employment Based Health Insurance in Vermont—Summing it up. 2002. Hhttp://www.bishca.state.vt.us/HcaDiv/Data_Reports/SurveyVTFamilyHealth2000/EmployInsur012202.pdfH

[14] Centers for Disease Control and Prevention. *REACH 2010 Surveillance for Health Status in Minority Communities --- United States, 2001--2002* Hhttp://www.cdc.gov/mmwr/preview/mmwrhtml/ss5306a1.htmH

## Poverty

Poverty is more than just being without financial resources; it affects all aspects of life; living in poverty means developing the strength to withstand difficult and uncomfortable emotional and physical situations. Generational poverty has a culture of its own that creates a way of life and a value system that is distinct from middle and upper class cultures. Leaving poverty requires more than financial resources, it also requires emotional, mental, spiritual and physical resources; and an understanding of the "Hidden rules of Class".[15]

These "hidden rules" can be used to describe differences between the culture of the middle class and the cultures of poverty and wealth. Most health and community services, designed to serve, poor reflect middle class values and culture. Key differences that will need to be addressed if the objectives of Healthy Vermonters and this plan are to be accomplished are illustrated in Figure 9.

It is incumbent on providers and community based services be aware of this culture, and to work with it if people affected by generational poverty are to benefit from the model for lifelong prevention and care called for by this plan.

Figure 9
**Hidden Rules Among Classes**

| | Poverty | Middle Class |
|---|---|---|
| **Social emphasis** | Social inclusion of people he/she likes | Emphasis on self-governance and self-sufficiency |
| **Food** | Quantity important | Quality important |
| **Time** | Present most important. Decisions made for the moment based on feelings or survival | Future most important. Decisions made against future ramifications. |
| **Destiny** | Believes in fate. Cannot do much to mitigate chance. | Believes in choice. Can change future with good choices now. |
| **Driving force** | Survival, relationships, entertainment | Work, achievement |

## Safety Net Services

Safety net services are those that are available to all, regardless of insurance status or ability to pay. Most offer care under a sliding fee scale and/or provide free care. They include federally qualified health centers, rural health clinics, clinics for the uninsured (free clinics), family planning clinics and community mental health agencies. The private physicians, dentists and mental health professionals who accept Medicare and Medicaid payment for services are critical participants in Vermont's safety net as are the hospitals and providers that write off unpaid bills, negotiate lower payment rates and provide charity care.

Vermont has ensured statewide coverage for family planning, mental health and substance abuse services though a process of designations and grants. Placement of clinics for the uninsured is determined at the local level and they are developed and operated by community volunteers; a small state grant supports a part-time paid staff position at each. Federally Qualified Health Centers and Rural Health Clinics are designated by federal agencies using criteria of medical and economic need and a formal application and approval process.

[15] Payne RK, DeVol, P, Smith TD. *Bridges Out of Poverty: Strategies for Professionals and Communities*. aha! Process, Inc. Highland (TX); 2001.

## *Quality of Care*

*Outcome desired:* Vermonters receive health services that are based on the best available scientific knowledge regardless of who provides the service or of the setting in which the services are delivered.

*Action needed:*

- Integrate evidence-based practices into clinical routines, verified by performance monitoring and supported by health care and public health. Depending on the setting, priority will be given to prevention and chronic disease services, infection control, patient safety and pain management.
- Establish a framework for monitoring, tracking and correcting undesirable variation in practice to reduce misuse, overuse and under use of services for which standards of care are known.
- Adopt polices for the delivery and payment of care that support quality improvement as a key strategy for achieving better health outcomes and reducing the overall costs of care.
- Incorporate practice guidelines and other tools in all new information systems to assist providers to deliver quality care and monitor health care practices.

*Background:*
Quality of care is defined as the "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge."[16] Good quality means providing people with appropriate services in a technically competent manner with good communication, shared decision making and cultural sensitivity. Good care avoids overuse, under use and inappropriate use of services; good care is care that is safe, efficient, effective, timely, patient-centered and equitable.[17] It's an irrefutable fact that high quality care, like preventive care, is cost-effective care. Yet we as a society have been slow to invest in the means to improve quality, just as we have been slow to invest in prevention. A system-wide approach to improving quality will require a reduction in undesired variability of care and increased consistency through evidenced-based practices, as well as an investment in information regarding effectiveness and cost-effectiveness, and the linkage of payments for care to measures of quality.

## Patient Safety

The area of quality assurance that has received the most attention is patient safety. It is estimated that tens of thousands of errors occur every day in the health system in the United States including medication errors, wrong-site surgeries, hospital and nursing home acquired infections, falls, and other untoward events. While many errors do not cause harm, an estimated 44,000 to 98,000 patients die every year as a result of errors that occur in hospitals; there are

[16] Institute of Medicine. *Quality Chasm*. Page 232.
[17] Institute of Medicine. *Quality Chasm*. Page 41.

approximately 50 adverse drug events per 1,000 person years; and more than half of all patients fail to receive needed care[18]. There are no specific data for Vermont. Research has identified several mechanisms to improve patient safety, including improved tracking of problems, and development and enforcement of specific policies and procedures, with built-in checking and systematic "root cause analysis" and correction when problems occur.

## Practice Variation

Among Medicare beneficiaries, the likelihood of receiving a service is more often a function of where the person lives than what they need. Variation is thought to be more related to practitioner preference, "traditional" practices in the service area and other factors than to differences in illness. Identifying and monitoring differences in care can therefore be important in indicating changes that could lead to improved quality and lower cost.

Table 10
**Variation in Care of Medicare Beneficiaries**
**Vermont Hospital Service Areas-2001**

| *Measure* | ***Low*** | ***High*** |
|---|---|---|
| Diabetes eye exams | 57.7 % | 81.9 % |
| Diabetes HgbA1c test | 55% | 80.8% |
| Coronary angiography (per 1000 beneficiaries) | 12.4 | 24.1 |
| Invasive cardiac procedures (per 1000 beneficiaries) | 9.5 | 18.2 |
| Days spent in hospital in last 6 months of life | 7.2 | 14.7 |
| Admitted to intensive care in last 6 months of life | 18.7 % | 30.9% |

This variation is illustrated in Figure qo.[19] The two measures of diabetes care shown in the table are services that all people with diabetes should receive and illustrates an area where services are being underused, with probable high cost consequences. Hospitalization, particularly intensive care, offers little benefit to the majority of elders in the last six months of life and illustrates high utilization of this very expensive and often unwarranted and undesired service. The two cardiac procedures are also expensive, but can confer significant benefit if appropriately targeted. Careful study of the variation here might identify both under or overuse of these services.

## Evidence-based Care

Unlike the legal system, where evidence is used to determine the cause of an event after it has happened, the health care profession uses evidence to help determine the likelihood that a future event, such as a screening procedure, the application of medication, or the execution of a surgical procedure, will be beneficial to a patient.

Using evidence-based medicine is not a simple matter. No two medical circumstances are identical, no two practitioners have exactly the same clinical expertise, and no two patients have quite the same values, beliefs or needs. Nevertheless, evidence-based practice is the key to a

[18] Institute of Medicine. *Patient Safety: Achieving a new standard for care*. National Academies Press, Washington, DC. 2004. page 31.
[19] Wennberg, J. *Practice Variation in Vermont: An Update*. Presentation. Montpelier, VT. April 7, 2004.

better health care system, for the lack of adherence to evidence-based clinical guidelines is demonstrably wasting money and jeopardizing health in clinical practice across the country.

A medical records review of 100,000 patients being treated for high blood pressure in 2001, for example, suggests that $1.2 billion a year in prescription costs could be saved if clinicians treating hypertension in the United States adhered to evidence-based guidelines in their prescribing of maintenance medication.[20]

More recently, a medical records review of 6,700 adults in a dozen metropolitan areas assessed the frequency with which patients actually got the care recommended for their various conditions. The results, published in "The First National Report Card on Quality of Health Care in America."[21] demonstrate the urgent need to change our health care system. The survey evaluated performance on 439 clinical indicators of quality for 30 acute and chronic conditions such as diabetes mellitus, asthma, hypertension, and heart disease, and for related preventive care. The results showed that these 6,700 individuals received the recommended care only about half the time and that this level of performance was about the same for chronic, acute and preventive care. The results were similar in each of the metropolitan areas studied.

While numbers are not readily available for Vermont and there is some evidence that Vermont performance may be better than the national average,[22] it is clear that our health care system is failing to provide the best care as routine care, and that this is contributing to higher costs, poorer health and less favorable medical outcomes.

As used in this document, "evidence-based practices" means clinical practices that have been proven to consistently produce specific, intended results. The development of these guidelines emphasizes the use of clear evidence from existing literature, rather than expert opinion alone, as the basis for advisory materials.[23] They may be distinguished from

- Practices that are based on theory, belief and widespread acceptance, but which have not, or not yet, been scientifically proven. Such practices include many that are labeled "alternative" or "complementary" by practitioners of Western medicine, as well as many of the traditional practices of Western medicine itself.
- "Promising practices," for which there is considerable evidence or expert consensus, but which are "not yet proven by the highest or strongest evidence."[24]
- "Emerging practices," which are clinical innovations that address critical needs but do not yet have scientific evidence or broad consensus support.

[20] Fischer MA, Avorn J. Economic implications of evidence-based prescribing for hypertension: Can better care cost less? *JAMA* 2004; 291:1850-1856
[21] Rand Corporation. *Report Card.*
[22] Jencks SF, Huff ED, Cuerdon T. Change in the quality of care delivered to Medicare Beneficiaries, 19981999 to 2000-2001. *JAMA;* 2003;289;305-312.
[23] Institute of Medicine *Patient Safety.* p. 330.
[24] Hyde, PS, et al. *Turning Knowledge Into Practice*. The American College of Mental Health Administration, Boston, MA. p. 31..

In identifying evidence-based practice as a principle by which our health care system should operate, the Vermont State Health Plan—2005 recognizes the difficulties and limitations inherent in the use of evidence-based guidelines.

- Evidence-based practices do not always result in improved outcomes, although most of them do most of the time.[25]
- Practice variability does not always result in outcome variability.[26]
- Conclusions about scientific evidence may be modified and even reversed over time, as further evidence is collected and analyzed. In health care, evidence usually suggests probabilities, rarely absolutes.

These limitations notwithstanding, the future of health care depends upon the development, dissemination, acceptance and use of evidence-based guidelines by individuals and providers. The competent practice of medicine requires that the practitioner have access to relevant guidelines at the time that diagnostic and treatment decisions are made, and requires that, whenever these guidelines are not followed, their rejection be the result of a considered, collaborative, informed decision by practitioner and patient.

In calling for adherence to evidence-based practice, the Vermont State Health Plan is not calling for cookbook remedies to be substituted for the practitioner's expert opinion. There are many important components to a collaborative screening or treatment decision, including the patient's needs, values, beliefs, desires and available resources. The decision to follow a course of treatment that differs from evidence-based guidelines may be valid and appropriate, but only if it is an informed and considered decision.

There are several aspects to reforming the health care delivery system to close the gap between what we know and what we do. Evidence-based practices must be 1) identified and approved, 2) disseminated and accepted, 3) integrated into day-to-day clinical practice, and 4) verified by performance monitoring. Far too many clinical guidelines are collecting dust on shelves because the systems and tools needed to integrate evidence-based medicine into routine practice are limited. Reforming the way care is provided without these tools will be impossible. Evidence-based approaches also must be integrated into the decision making process of insurance officials, hospital administrators, government regulators, and public policy makers at all levels.

Enabling practitioners to consider evidence-based practices at the time of patient interaction requires decision support technology that is largely missing from today's health care system in Vermont and elsewhere. It also requires appropriate training and educational support for patients and for health care workers at many levels. Implicit in adopting evidence-based practice as the standard for medical care in Vermont is the necessity of reforming regulatory and reimbursement policies to support and enhance clinical preventive services, including screening, immunization and counseling.

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[25] Agency for Health Care Research and Quality (AHRQ). *Relying on clinical guidelines to treat young infants with fevers may not improve outcomes.* Research Activities; March, 2004.

[26] AHRQ. *Cataract treatment in the United States, Canada, Denmark and Spain.* Research Activities; June, 2004.

Evidence-based practice also requires the mainstreaming of screening, diagnosis and treatment of HIV/AIDS, substance abuse and mental illness, and the equal treatment of often marginalized groups such as elders and members of racial and ethnic and sexual minorities. Science provides no support for stigma.

With respect to mental illness, of the hundreds of interventions and practices in use, few have been approved as evidence-based, and these only for people with major mental illness. Vermont is one of eight states participating in the New Hampshire-Dartmouth Psychiatric Research Center's Evidence-Based Practices Project, which began in 2000 with a goal of promoting the implementation of research-based interventions for the care of persons with severe mental illnesses (SMI) in routine, community-based mental health practice settings (e.g. community mental health centers). The project is divided into three phases, and at the time of publication, was in Phase II.

During Phase I, implementation resource kits were developed for each of six identified evidence-based practices. The six EBPs are 1) Medication Management Approaches in Psychiatry (MedMAP), 2) Illness Management and Recovery (IMR), 3) Assertive Community Treatment (ACT), 4) Family Psycho education (FPE). 5) Supported Employment (SE), and 6) Integrated Dual Disorders Treatment (IDDT). These kits contain educational and training materials for consumers, family members, clinicians, supervisors and administrators. The intent is that the material in the resource kits, in conjunction with expert consultation and support, could be used in routine mental health settings to assist programs in implementing evidence-based practices.

Phase II, is a three-year demonstration project involving the implementation resource kits for five of the six psychosocial practices (MedMAP is excluded from Phase II). It is being conducted in more than 50 mental health programs in eight states, including Vermont. Its primary goals are to refine the implementation resource kits themselves and to determine the level of supplementary consultation and support needed so that mental health centers can effectively implement evidence-based practices.

Phase III will be a national demonstration project, based on what was learned in Vermont and other test states.[27]

[27]Drake, RE. *Evidence-based Practices and Knowledge Dissemination*. Hhttp://www.dartmouth.edu/~psychrc/know. htmlH.

## *Accountability and Transparency*

*Outcome desired*: Information regarding problems, progress and success in providing high quality coordinated health services to Vermonters is shared among organizations and with the public.

*Action needed:*

- Select specific outcome indicators and the methods for measuring and collecting the selected data elements, interpreting the data and reporting the progress for each. Outcomes should be established for all components of the model (Figure 1) and address professional competence, financial performance, adequacy of access, public health and community performance and evidence of collaboration.
- Identify the organization or organizations that will assume responsibility for development and implementation of the comprehensive system for accountability.
- Make available to all Vermonters regular reports that provide clear and usable information on quality, cost and system outcomes.

*Background:*
All parties to the health care delivery system must be accountable for their activities, policies and practices, and should be called on, when appropriate, to justify or change the way they do things. At various times, this may include individuals, physicians, non-physician providers, hospitals and other facilities, payers, purchasers (employers), professional associations, government, policy makers, regulators, investors and lenders of capital, communities, lawyers and the courts. A 1996 article by Emanuel and Emanuel provides a guide to accountability and forms the basis for much of this chapter.[28]

Accountability obligations in the health care and public health include professional competence, legal and ethical conduct, financial performance, adequacy of access, public health promotion, and community benefit, to name only a few. Communities and individuals must also be held accountable when appropriate.

## Systems of Accountability

The traditional model of accountability in health care has been between physicians and their peers, and between physicians and their patients. Health care has been seen as a professional service rather than as a commodity, and the responsibility of the physician to the patient has been mediated by the profession's standards of practice and of ethical conduct.

In recent years, an economic model has come into use, in which the accountability of the marketplace has been applied. The patient is viewed as a consumer, health care as a commodity, and physicians and others as providers of an economic product. Accountability is mediated by marketplace forces, with consumers expected to choose the best care for their own needs.

[28] EJ Emanuel, LL Emanuel. What is Accountability in Health Care? *Ann Int Med*.. 1996;124:229-239. :

Less common has been a political model, employed in Community Health Centers and other settings, in which both the recipients of services and providers are "citizen-members" through a governing board. In this model, accountability obligations are not fixed and change is dependent on board interpretation of patient well-being.

Each of these models has something to offer in determining accountability for health services and each has significant drawbacks when used as the sole model. Some combination may be the most effective way to develop a truly accountable system for Vermont.

## Reporting

A system of accountability requires periodic evaluation of the accountable party's adherence to agreed-upon criteria and/or measures for a specific content area, and the public dissemination of the evaluation and of the response by the evaluated party. Evidence indicates that only when reports are made public are changes sustained over time.

Critical to all models of accountability is agreement on the criteria by which each member of the health delivery system will be judged and will judge others. Currently, while the mechanisms for evaluation are limited, there is a growing body of research suggesting clear standards in professional care, hospital systems, financial accountability and other areas. These sources should form the basis for development of a reporting mechanism with the potential for expansion over time. See also the chapter: Quality of Care

## *Integrated Health Information System*

*Outcome desired:* A comprehensive Vermont information infrastructure is in place to support implementation of all components of the model for lifelong prevention and care.

*Action needed:*

- Develop and implement a single, statewide plan to guide purchase and deployment of information infrastructure.
- Ensure that all information technology purchases made during the planning and start-up phases have the capacity for modification and integration with the future system.
- Purchase and deploy population-based clinical registries to health service providers to facilitate management of care at the individual and caseload levels. This initiative must proceed prior to full plan development.
- Ensure that all systems and data sharing agreements are within the limits imposed by the federal Health Insurance Portability and Accountability Act of 1996 (HIPAA) and other relevant state and federal laws.

*Background:*
A major barrier to better health care in Vermont, as elsewhere in the United States, is the lack of a comprehensive information system. No other industry the size and complexity of the health care delivery system operates without state-of-the-art information support. There are significant gaps within and between existing information technology components. Health care providers do not currently have the tools available to provide the proactive planned care called for in this plan; consumers cannot access information about their own health; health plans must rely on chart audits to monitor quality; and public health has limited data with which to identify problems and monitor change. If we are to accomplish the goals of this Vermont State Health Plan, resources must be directed to improving the health information infrastructure.

In the context of evidence that, on average, adults in this country receive the recommended chronic, acute and preventive care only about half the time,[29] the potential effects of this system shortcoming are enormous. No other industry or economic sector tolerates a 50-percent failure rate.

The poor quality of the nation's health care information systems has numerous negative consequences, among them:

- Patient safety is put at risk. The likelihood of drug interactions or other medical errors is heightened.
- Information about evidence-based treatment options is not immediately available at the time decisions are made.

[29] Rand Corporation *Report Care on Quality*

- Costs are increased and provider productivity compromised when examinations, diagnostic tests such as labs and x-rays, and other services must be repeated and unneeded care is provided.
- Patient self-management is compromised and collaborative care options are limited in part because medical information is housed in multiple settings and is generally unavailable from any of them.
- Health outcomes are compromised by under use (patient does not get the necessary treatment or preventive care), overuse (patient gets too many procedures, or too many hospitalizations, or too many drugs, all of which tend to increase associated risks without compensating benefit), or other misuse (patient gets the wrong treatment).
- The reporting of public health information for early detection and response to disease outbreaks and potential bioterrorism is inefficient and incomplete.
- Time spent in dealing with inefficient paperwork systems is time taken away from direct patient-care tasks. Paperwork is consistently cited by nurses as a major barrier to better patient care.

## Practice-based Systems

Very few health services providers in Vermont have adequate paper systems or make use of electronic technology to manage services. This lack of information makes it virtually impossible to integrate evidence-based practice into routine, day-to-day health services delivery. It hides systemic weaknesses in clinical practice, and it limits the use of reminder systems that facilitate adherence to treatment plans.

Primary care physicians often have difficulty determining what specialty care their patients are receiving be it for medical, mental health or substance use problems. These specialists, in turn, may have difficulty discerning a patient's overall health picture. Neither may have access to a comprehensive list of drugs prescribed or prescriptions filled. Patients may have the same lab tests repeated because there is no centralized record that tests were done or of the results. These problems often are magnified when patients move or have seasonal residences, when surrogate decision makers are involved, or when decisions must be made quickly. An individual's concurrent use of complementary and alternative medicines may further complicate the picture, as may the widespread practice of self-medication. Existing information systems also typically do not allow practitioners to review care at the population level, to identify groups of patients needing additional care, to monitor practice performance, or to engage in quality improvement efforts.

A clinical information system with a registry function is needed in each provider office and institution, and it is essential that mental health and substance abuse service providers are included. Within practices, registries can enhance the care for the population served by identifying groups of patients needing additional care, as well as facilitating performance monitoring and quality improvement efforts. It allows practitioners to identify all of their patients who have a particular condition (e.g. diabetes, asthma, depression, alcohol addiction). This information system would be used to track patient progress, to remind patients and providers of needed services, to proactively reach out to individuals in need of care, to manage care to

scientifically established goals, and to track an individual's condition and care across time and care settings.

All practice-based data systems, equipped with appropriate privacy safeguards and access limited to specific individuals or purposes, should be linked to health insurance plans, peer review organizations, and the Vermont Department of Health, for planning, quality improvement, monitoring and evaluation purposes.

Practices will need help with initial costs for purchasing hardware, software and licenses, and data entry. Training, technical assistance and systems will be needed to allow sharing among peers, to help practices maximize the benefit of the clinical information systems. Other integrated support services that are necessary to enhance clinical practice, include technology for web-based video visits, e-mail communications, and electronic prescribing and patient orders.

Evidence-based standards of care must be embedded in the information systems used by practices and shared with patients to enable full patient participation in goal setting and decision making. Treatment protocols must be integrated into easy-to-access systems for guiding clinical practice and integrating specialist expertise with primary care.

These system development efforts must be compatible with and supportive of federal efforts to develop a National Health Information Infrastructure, a national system that would allow a doctor or other health-care provider to access an always-up-to-date electronic health record for a patient who has authorized it, regardless of when and where the patient receives care. This would not be a national database, but rather a set of standards and secure networks that would allow a doctor or hospital to immediately gather relevant information by computer network -- such as test results, x-rays and medical history, as well as clinical guidelines, drug labeling and current research findings -- to best treat an individual patient. Both the national system and the state system would be designed to help consumers and patients to manage their own health by giving them greater control of their health records.

## Public Health Systems

Public health currently uses a variety of information systems to monitor health status over time. These systems include vital records (births, deaths), hospital discharges, surveys of health behavior among youth and adults, and condition specific registries. There is very little information available on wellness, use of health care services, the services provided or about the treatment or progress of disease. Properly designed, the clinical registries will be an important source of such data and facilitate better planning and policy decisions by public health providers.

A health data registry is an essential monitoring and planning tool for public health. With all individual identifying information removed, a registry is used to collect and maintain data on certain events or conditions for an entire population. At the state level, registries allow the health department to monitor trends in disease and risk behaviors, to identify high risk populations, to improve care management, and to support research, providing a source of data for testing current, ongoing or future hypotheses regarding the nature of disease and its associated factors.

The Vermont Cancer Registry, maintained by the Vermont Department of Health, is a central bank of information on all cancer cases diagnosed or treated in Vermont since January 1, 1994. The registry collects information on the diagnosis and first course of treatment on newly diagnosed cancers among Vermont residents. This allows researchers to monitor cancer trends over time, to determine cancer patterns in various populations, to guide the planning and evolution of cancer control programs, to help set priorities for allocating health resources, and to provide information for a national database of cancer incidence. This kind of surveillance is necessary if researchers are to better understand the causes of, and to develop more effective screening and treatments for, one of our more widespread diseases and our second most common cause of death. Health care facilities are required by law to report cases to the cancer registry within 120 days.[30]

Vermont law also requires all health care providers to report child immunizations to the Vermont Department of Health.[31] Pursuing a goal of universal immunization, the health department has developed a new computerized immunization registry. Staff hoped to have recruited 75 practices (out of the 159 practices in the state that serve children and/or adolescents) to feed information into the registry electronically by the end of 2004.

With privacy safeguards in place, the immunization registry manages vaccine records for children, provides guidance for the timing of vaccine administration, and maintains clinic inventories of vaccines, including lot numbers and expiration dates. Among other benefits, this immunization registry helps prevent over-immunization of children who do not have accessible health records, provides easier access to immunization records for parents and school nurses, and provides for easy tracking by lot number in case of vaccine recall.

Data entry for the new system can be a burden for practices, especially those that already have an automated system, but health department staff has attempted to lessen this burden by populating the system with its birth record information, and plans to add data from other sources such as Medicaid and private insurers. Although the law requires practices to participate, the department's approach has been to encourage use by pointing out the benefits, such as being able to print records in response to yearly school or parent requests for immunization histories.

## Health Care Information Systems

An integrated data system will also provide significant benefit to organizations throughout health care. Practice-based registry data, in combination with pharmacy and claims data can assist health plans monitor the quality and utilization of members more effectively and at much lower total cost than the current system of chart audits. Hospitals and other employers can similarly monitor trends in adverse outcomes, and identify potential problems early to prevent more serious consequences. This integrated data system would allow comprehensive performance monitoring of key indicators for prevention and treatment of mental health problems and substance abuse across the public and private systems in the state.

[30] Chapter 4,. Vermont Cancer Registry. 18 V.S.A. § 153
[31] Chapter 21, Communicable Diseases. 18 V.S.A. § 1129

# Vermont State Health Plan
# 2005

## Part 4: Focus Areas - A

## *Chronic Conditions*

*Outcome desired*: A comprehensive, proactive system of care that improves the quality of life for people with or at risk for chronic conditions and that is more financially sustainable.

*Action needed:*

- Ensure adequate support, including funding, to guide and manage the redesign of the system of care for people with chronic conditions.
- Ensure full integration of the screening for and diagnosis and treatment of substance abuse and mental illnesses into the new system.
- Ensure commitment of key entities in health care, community and public health as well as providers and consumers to the new system of care.

*Background:*
Chronic conditions last a year or longer and limit what one can do and/or require ongoing medical care.[1] They are the leading cause of illness, disability and death, touching the lives of most Vermonters. They include diseases such as hypertension, arthritis and diabetes, mental conditions, disabilities and other conditions. Seven of the 10 leading causes of death in Vermont are chronic illnesses: heart disease, cancer, stroke, lung disease, diabetes, Alzheimer's disease, and liver disease.

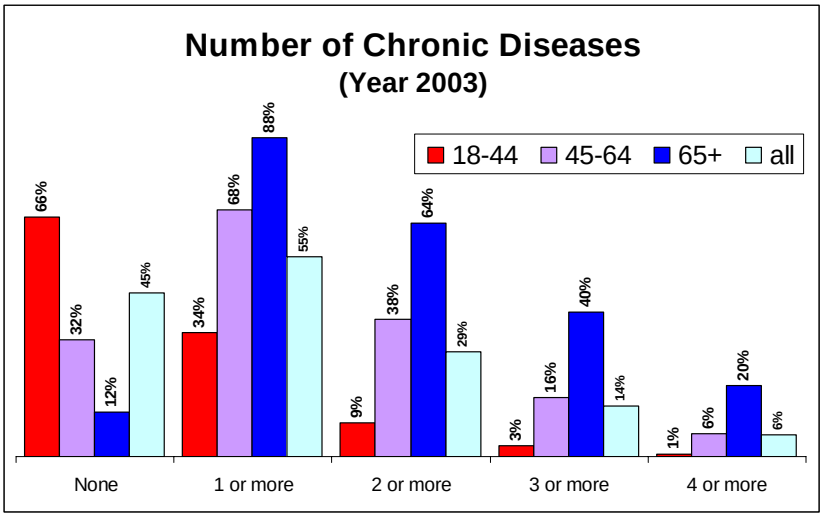
The needs of people with chronic conditions will be the primary driver of demand for health care and the resulting costs for the foreseeable future. Indeed, with the aging of the baby boomers, the impact of chronic conditions will grow and, with it, the imperative to improve people's lives and contain costs.

More than half of all Vermont adults have one or more health care problems that can be expected to last a year or longer, limit what they can do, and require ongoing medical care. The number of Vermont adults reporting chronic conditions increases with age: in a recent survey, 88 percent of those aged65 and older reported having one or more chronic conditions and 20 percent reported having four or more. [2] Even among the 45-year-old to 64-year-old age group, 68 percent reported having at least one chronic disease (Figure 11).

Care for people with chronic conditions currently represents 83 percent of health care spending, 81 percent of hospital admissions, 76 percent of all physician visits, and 91 percent of prescriptions written.[3] It is estimated that in excess of $2.3 billion of the $2.8 billion in spending for Vermont residents in 2002 was spent on caring for chronic conditions. The Medicaid portion of this expenditure is 17.5 percent or approximately $407 million.[4]

[1] Partnership for Solutions. *Chronic Conditions*
[2] Vermont Department of Health. *Behavioral Risk Factor Surveillance Survey*. 2003.
[3] Partnership for Solutions. *Chronic Conditions*
[4] Dept of Banking [ ] Health Care Administration. *2002 Expenditure Analysis.*

Figure 11
**Chronic Conditions by Age of Vermonters**




## The Vermont Blueprint for Health

Vermont's response to the challenge of chronic conditions is embodied in the Vermont Blueprint for Health, a collaborative project begun in the fall of 2003 and led by a public-private partnership that includes state government, health insurance plans, business and community leaders, health care providers, and consumers. The Vermont State Health Plan—2005 follows and extends the Blueprint approach to health care generally and fully incorporates the Vermont Blueprint for Health.

The Vermont Blueprint is based in large part on a chronic care model that has been developed by an organization called Improving Chronic Illness Care (ICIC).[5] Based on an analysis of available literature about promising strategies for chronic illness management, the ICIC model envisions an informed, activated patient interacting with a prepared, proactive practice team, resulting in high quality encounters and improved health outcomes. It includes roles for the community, the health care system and the health care practice team, and it addresses the issues of self-management support, delivery system design, and clinical information and decision support systems. The ICIC premise is that the evidence-based change concepts that are associated with each of these elements will, in combination, foster productive interactions between informed patients who take an active part in their care and providers who have the benefit of appropriate resources and expertise.

The Vermont Blueprint is actively pursuing change in four broad areas: patient self-management, provider practice change, community development and information system development.

Effective chronic disease management is best achieved when the patient actively manages his or her own care in collaboration with the primary care physician and other members of a health care

[5] Institute for Chronic Illness Care. *Chronic Care Model*

team. Patients then have a central role in determining their care, one that fosters a sense of responsibility for their own health. The Blueprint self-management team is exploring evidence-based strategies to improve patient skills in self care and is currently piloting a chronic disease self-management course.[6]

The Blueprint provider practice team is addressing the three areas of the ICIC Chronic Care Model that are central to ensuring that providers are proactive and prepared to deliver needed chronic care services. These areas are delivery system design, decision support and the use of a patient registry (clinical information system).

In a well-designed delivery system, clinicians plan visits well in advance, based on the patient's needs and self-management goals. All of the clinicians who take care of a patient have centralized, up-to-date information about the patient's status, and follow-up is a part of standard procedure. Treatment decisions need to be based on evidence-based practices, and evidence-based guidelines are integrated into the day-to-day practice of the primary care providers in an accessible and easy-to-use manner. A key laboratory for testing ways to improve this design is the Vermont Community Diabetes Collaborative, run by the Vermont Program for Quality in Health Care and funded by the Department of Health and other state resources.

Community participation in the management of chronic conditions is a new concept, yet there are numerous existing community services that can and do support people with chronic conditions. Because physical activity is a key management strategy that is easily understood and implemented by communities, the Blueprint community team is focusing on expanding physical activity services.

Effective chronic illness care is virtually impossible without information systems that assure ready access to key data on individual patients as well as on patient populations. A patient registry is the cornerstone of a comprehensive clinical information system that can enhance the care of individual patients by providing timely reminders about needed services and summarized data to track and plan care. At the practice population level, it is used to identify groups of patients needing additional care, as well as to facilitate performance monitoring and quality improvement efforts. Although the Blueprint health information system team has experienced initial difficulty in finding a suitable application, deployment of a practice registry that would interface with a growing comprehensive health information system is the team's priority project.

## Health Care and Public Health

The participation of a broad group of public and private organizations in the Blueprint project testifies to the recognition of chronic disease as a serious issue and also testifies to a serious commitment by all parties to address it in a collaborative way. Each of the participating organizations has committed resources to implementation and has identified specific projects to enhance implementation.

[6] Stanford University. Chronic Disease Self-Management Program. http://patienteducation.stanford.edu/programs/cdsmp.html

The fields of public health and of health care have developed separate interventions over the years to address the growing concerns about chronic conditions. Public health strategies have focused largely on primary prevention services (tobacco, nutrition) or screening and early detection (breast and cervical cancer). In recent years, funding from the federal Centers for Disease Control and Prevention has increasingly been directed to reducing the "burden" of disease (diabetes, asthma, arthritis), which has led to programs targeting people with existing disease and increasing the interface with the health care sector, with varying levels of success.

The Chronic Care Model represents a recent evolution of strategies within health care make care more proactive. Originally developed as a tool for improving care within a managed care organization and focusing on individual care and outcomes, it adapted public health's population-based strategies to the health care sector. The diabetes control programs in state health departments were among the first public health programs to recognize that this represented an important new tool to accomplish public health as well as health care goals.

Through the Blueprint, Vermont is the first state to try to revise both public health and health care approaches to chronic conditions in a comprehensive, collaborative redesign of the health system.

## *Emergency Medical Services*

*Outcome desired:* A high quality, fully integrated, response system is available to serve all Vermonters in emergency situations.

*Action needed*:

- Improve the stability of the Vermont EMS system. This includes
  - Reduce the shortfall between the cost of EMS operations and patient revenues.
  - Examine the potential to improve efficiency both within EMS organizations and in the system as a whole.
  - Coordinate recruitment of new, and retention of existing, EMS personnel.
- Enhance accountability to the community by establishing specific measures of quality and service delivery (response times and clinical levels) for different types of communities (rural, urban, large, and small).
- Establish a state trauma registry to monitor the quality and timeliness of trauma care; determine if formally organized trauma care system is needed in the state; and, if so, guide development and implementation of that system.

*Background:*
Emergency Medical Services (EMS) in Vermont represent in a small way the best of an integrated health system with strong community support for local ambulance services; health care support via payment and other resources for EMS; and commitment of public health to quality service through information systems, workforce development and regulation. It is also representative of a system in which many groups share responsibilities for individual components, where no one is fully responsible, and, where unresolved problems in one part of the system can negatively affect the overall delivery of care to patients. As is too often the case with the rest of health care, the problems faced by EMS are generally addressed in isolation from other health care issues and systems.

The delivery of EMS to ill and injured citizens requires a coordinated, systematic response of resources. In Vermont, more than 75,000 responses occur annually for emergency medical care or transportation. Ninety ground ambulance services (operating 200 ambulances), 92 first responder services, one air ambulance, more than 3,000 certified personnel and 15 hospitals operating emergency departments all combine their efforts to handle a range of incidents from minor injuries or illnesses to cardiac arrests and major trauma.

Emergencies are self-defining and begin with incident recognition. Most commonly, people access the EMS system by calling 9-1-1. Calls are received, forwarded to a dispatcher, and instructions are provided until EMS arrives. EMS first response is on-site EMS care (but not transportation) provided by persons with emergency medical training and equipment. Ambulance services provide emergency basic and advanced life support medical care. The majority of emergency medical calls require only basic emergency care. All of Vermont is covered by ambulances service licensed to provide some advanced care; however, not all services are able to

provide advanced care on every call. EMS has the responsibility to deliver patients to the nearest hospital capable of handling the patient's emergency problem. In most cases, this is the nearest hospital.

All acute care hospitals in Vermont operate around-the-clock emergency departments; however, while every hospital can handle the majority of cases, only a few can handle complex cardiac, trauma, pediatric, neonate, psychiatric, or other complex problems. When patients' needs exceed the capabilities of the hospital they are at, inter-facility transfers are arranged. Emergency patients who require specialty care are typically transferred to Fletcher Allen Health Care, Dartmouth Hitchcock Medical Center, or Albany Medical Center, all of which have been designated Level 1 Trauma Centers by the American College of Surgeons.

The National Highway Traffic Safety Administration (NHTSA) has supported the development of statewide EMS systems since the late 1960s. One approach that NHTSA has taken is to develop a set of "gold standards" for state EMS systems. See Appendix E. Areas of particular concern in Vermont at this time are adequate resources, trauma systems and standards of practice.

## Resources

Geography and demographics in Vermont necessitate a distribution of more ambulances statewide than would be required to provide service in a more densely populated urban environment. We need EMS everywhere, but we don't need it anywhere very often. This leads to an inherently inefficient system. The Vermont EMS system has historically placed a high value on local development and operation of services. EMS is therefore viewed much more as a community service than a health care service. This core value leads to a large number of communities operating individual (or in come cases multiple) EMS organizations. Communities also determine how the cost of operations will be covered, the level of clinical capability, response time and other attributes within a statewide framework. The advantages of local ownership are clear; the cost however, is further inefficiency and a number of challenges in providing adequate EMS coverage.

- The cost of staffing and operating a single ambulance on an annual basis is about $350,000
- Over a third of Vermont's 90 ambulance services respond to less than one call a day
- Maintaining skills with a low volume of calls is difficult for responders
- There is no ambulance service in Vermont that is able to cover its full cost of operations from patient revenues without a financial subsidy from covered communities, volunteer labor, or more typically, both.

The challenges faced by small ambulance services include poor economies of scale with associated limitations in financial stability and increasing difficulty attracting and maintaining a qualified workforce. While there is significant variation in the organizational structure of Vermont's ambulance services, the most common staffing configuration is a combination career-volunteer model. Volunteer labor does not reduce that cost, but merely redistributes who pays the cost (i.e. the volunteers pay through their contribution of labor).

The size of the Vermont EMS workforce has been nearly level at just over 3,000 persons for several years. Within the workforce, a steady migration to higher levels of training and certification has been a positive change. Also, during the past few years, the number of EMS organizations has continued to grow, which is resulting in competition among them for a steady number of personnel. Many services are finding it increasingly difficult to recruit, train and retain the number of qualified EMS providers they need, particularly volunteers.

Community hospitals in Vermont all have made commitments to local EMS providers, including supervision by emergency department physicians, training, and financial assistance. In some areas, they have taken on additional responsibilities to more fully integrate the services with the emergency department and hospital services, ensure competency and sustain the service.

## Standards of Performance (Quality)

The Department of Health ensures competence for individual practice at various levels including Emergency Care Attendants, Emergency Medical Technicians at the Basic and Intermediate levels and Paramedic. The services themselves are licensed at the level they have the staff/equipment and medical backup to provide, and while they aren't required to have this level on all shifts, this approach allows level of care to increase over time. This use of minimum quality standards for state licensing is important, but is inadequate as a tool to "raise the bar" to promote higher quality service and to establish standards of accountability to patients and the communities that use the services.

Unlike much of the rest of health care delivery, there has been little research regarding the standards of performance for emergency response or the level of skill required for various types of emergencies. What little evidence exists is often related to care in urban rather than rural settings, though there has been increasing national attention to this gap in recent years.

Vermont has very limited data on the use of procedures and patient outcomes associated with pre-hospital care. Further, there is no easy resource to determine the capacity of each hospital to care for specific cases on all shifts. There is information suggesting that patients with trauma, stroke, cardiac and certain other types of problems do better at a larger regional resource center with specialty capability. Today in the Vermont system most patients go to the nearest hospital, which probably works well for the vast majority of cases, but may not be appropriate for those who need very specialized care.

It is important that Emergency Medical Services are accountable to their communities. Service delivery targets (response times and clinical levels) should be established for different types of communities (rural, urban, large, and small) and specific quality measures developed. Essential to this effort is a comprehensive data system to track services and outcomes and a reporting framework that provides essential information to communities and the public.

## Trauma Care

In many jurisdictions in the United States, an organized system of trauma care, intended to deliver the right patient to the right hospital in the right amount of time, has been shown to

reduce mortality. Vermont is one of 15 states in the United States that currently does not have such a system.

While the movement of trauma patients to local hospitals and on to trauma centers is generally orderly and predictable, there is little data to assess whether or not we are meeting the needs of seriously injured patients. A regionalized system of trauma care could potentially provide the necessary resources to improve the capabilities of our pre-hospital system.

Except for Fletcher Allen Health Care, there has been no independent verification of the capability of Vermont hospitals to provide trauma care. It is possible that some hospitals may lack the equipment or trained staff, on all shifts, that is needed to provide for the initial stabilization and resuscitation of the trauma patient. If a regionalized system of trauma care were to be adopted, it could mandate hospital compliance with such basic guidelines as Advanced Trauma Life Support certification, intubation skills, and other procedures. Compliance to these standards would then be enforced as a necessary qualification to remain part of the trauma system in Vermont.

Implementation of a trauma registry would provide the data needed to determine how well Vermonters are currently served and the nature of changes needed to improve care either statewide or in specific areas. It would serve to keep communities informed about the quality of care provided; allow the development of specific performance criteria; and, if appropriate, guide the development of regional and/or a statewide trauma system. To be useful, a trauma registry will require participation by all hospitals in Vermont as well as Dartmouth Hitchcock and Albany Medical Centers.

## *End of Life Care*

*Outcome desired*: Vermonters have the information and supports needed to make decisions at the end of life that reflect their personal values, beliefs and needs, and a system of care that will ensure that those choices are followed and supported by all components of the Vermont health system.

*Action needed:*

- Assist individuals or their designated surrogates to make the best personal decisions at the end of life by adopting shared (informed) decision-making techniques to develop informational materials, guide exploration of options and reach a decision.
- Remove barriers and promote informed decision making at the end of life by adopting legislation based on the guidance provided by the Office of Attorney General and the Department of Health.
- Redefine chronic pain as a chronic condition that is managed through a comprehensive program of provider services, self-management, and supportive communities should be developed and implemented.

*Background:*

It is estimated that 80 percent of people wish to die at home, surrounded by family and friends, free of pain and without unwanted medical intervention to prolong suffering; yet 80 percent of people die in hospitals or nursing homes receiving unwanted medical intervention.[7] Data on utilization of services indicate that, on average, Vermonters spend approximately nine days in the hospital during the last six months of life and that 20 percent are admitted to the intensive care unit during that time.[8]

In national evaluations, Vermont tends to rank poorly in its laws and policies regarding end-of-life care, but does somewhat better in assessments of how care is actually provided.[9,10] In the fall of 2003, the Vermont Attorney General convened a workgroup that met with consumers and professionals to identify and suggest ways to overcome the legal barriers to excellent end-of-life care. A report of that work includes pain and symptom management recommendations and recommendations for legislation regarding decision making related to end-of-life care. [11]

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[7] National Association of Attorneys General. *Improving End-of-Life Care: The Role of Attorneys General.* http://www.naag.org/publications/naag/end_of_life/pub-end_of_life.php

[8] Wennberg, J. *Practice Variation in Vermont.*

[9] Robert Wood Johnson Foundation. *Means to a Better End: A Report on Dying in America Today.* 2002

[10] Pain & Policy Studies Group. *Achieving Balance in Federal & State Pain Policy: A Progress Report Card*. University of Wisconsin, Comprehensive Cancer Center. 2004.

[11] Report to Vermont Attorney General William Sorrell from the Committees of the Attorney General's Initiative on End-of-Life Care. www.atg.state.vt.us/upload/1107181822_EOF_Report.pdf

The report recommends a number of measures to increase the level of public and professional awareness and education regarding pain and symptom management, especially end-of-life care issues, including:

- requiring professional training in hospitals, nursing facilities and home health agencies;
- establishing a program for licensed health care professionals to demonstrate proficiency in pain management;
- requiring data relating to pain management in the quality data reported by hospitals;
- issuing guidelines addressing the relationship between law enforcement and the aggressive medical treatment of pain using opiates and other narcotics; and
- training health care professionals on issues relating to drug abuse and diversion."

Several recommendations address legislative changes including amendment of the Bill of Rights for Hospital Patients to include the rights to pain assessment and management and information about hospice services; removal of barriers in insurance coverage for hospice, pain management and palliative care; and, modifications to the advance directives, do-not-resuscitate orders and guardianship laws.

While the legal issues of surrogacy, patient rights, prescription of opiates, potential diversion, advanced directives and other concerns must be addressed, there is much that can be done under existing law, using existing standards of care and support systems to ease the suffering of people and help them to fulfill their personal wishes about the manner of their death.

End-of-life care and management of associated pain needs to be addressed in the same manner as care for all chronic conditions. Applicable strategies include:

- Informed decision making, including information, counseling and skill development to determine the course of treatment most appropriate to one's own values and needs. See Chapter: Individuals, Consumers, and Patients.
- Recognition of patients as partners and managers of their own health. Closely related to informed decision making, empowerment of patients requires providers to keep patients informed about their condition and care options and to be guided by the patient's desires.
- Use of existing standards of care for pain management and other aspects of care. Clinical registries should be used to keep track of patients with pain, continually reassess the control of pain, and ensure compliance with the guidelines that do exist is consistent with the goals of the Vermont Blueprint for Health. See Chapter: Chronic Conditions.
- Community support systems including respite and home-based services. Increasing the role of community in end-of-life care can have enormous benefits in terms of meeting the wishes and maximizing the physical, emotional and spiritual comfort of individuals at the end of their lives. It is also of profound benefit to family and caretakers. Greater support for home and community-based programs, including respite and hospice services, could allow the system of care to deliver high quality end-of-life care that is less medically intensive, less costly, and more in keeping with the intentions and desires of the care recipients. See Chapters: Community and Long-term Care.

## *Environmental Health*

> *"Few would dispute that we should keep track of the hazards of pollutants in the environment, human exposures, and the resulting health outcomes — and that this information should be easily accessible to public health professionals, policy-makers and the public. Yet even today we remain surprisingly in the dark about our nation's environmental health."*
>
> America's Environmental Health Gap

*Outcome desired:* Reduce or eliminate risk factors in the environment that are associated with disease and other adverse health conditions

*Actions needed:*

- Connect regulatory information with public health and clinical data (e.g. environmental data, exposure data, health outcome data)
- Enhance understanding of the uses and limits of scientific tools for determining the relationships between environmental hazards, exposures and diseases.
- Increase coordination among environmental and health authorities and use of information technology to enhance data sharing and cooperation,

*Background:*
Many of our great achievements in improving health and quality of life in the past two centuries can be attributed to improvement in environmental conditions and the reduction of exposures to environmental hazards. This work continues, but, new challenges have emerged. There is much we do not know about the effect of environmental hazards on birth defects, asthma, cancers and other chronic conditions. Current prevention efforts suffer, in the words of one study report, from a "lack of basic information that could document possible links between environmental hazards and chronic disease [and a] lack of critical information that our communities and public health professionals need to reduce and prevent these health problems. While overt poisoning from environmental toxins has long been recognized, the environmental links to a broad array of chronic diseases of uncertain cause is unknown."[12]

"In its broadest sense, environmental public health comprises those aspects of human health, disease and injury that are determined or influenced by factors in the environment. This includes the study of both the direct pathological effects of various chemical, physical and biological agents as well as the effects on health of the broad physical and social environment, which includes housing, urban development, land use and transportation, industry and agriculture."[13]

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[12] Pew Environmental Health Commission. *America's Environmental Health Gap*. 2000. http://healthyamericans.org/reports/pew/
[13] Centers For Disease Control and Prevention. *Health People 2010: Environmental Health*. 2000.

The focus has broadened from cancer as the primary impact of toxic exposures to include potential neurological, endocrine, and reproductive impacts. There also is a growing effort to improve our understanding of the developmental and genetic susceptibilities of individuals to environmental exposures. For example, it is well documented that children, the elderly and persons with compromised immunological systems are more susceptible to the potential negative impacts of environmental exposures such as lead or mercury. Research through the environmental genome project is uncovering genetic susceptibilities as well. As a whole, however, our understanding of the relationship of environmental health hazards and chronic conditions remains limited.

## Prevention

Protection of the natural and built environment from sources of contamination is the safest, wisest and most economical course for preventing disease cause by exposure to hazardous substances. When that fails, people must avoid the sources of contamination or they must be removed, usually at great cost. Everyone has a role to play in protecting themselves and others.

- **Individuals and families** can take actions to prevent and/or limit environmental interactions and exposures by avoiding eating fish that may be contaminated, testing for radon, ensuring proper lead abatement).
- **Providers and the health care sector** need to recognize the potential contribution of environmental interactions and/or exposures to a disease or condition, and to provide incentives for reporting and appropriate treatment and referrals.
- **Communities** must recognize the health impacts of decisions related to changing our natural and built environment — including zoning, land use planning, economic development, agricultural and energy policy.

Preventing environmentally related disease is largely beyond the control of individuals acting alone. The coordinated actions and policies of the community and public health are therefore essential to protecting, changing or controlling the environmental conditions that pose threats to health (e.g. providing a safe drinking water supply). See Chapter: Prevention as a Priority.

## Information Systems

In order to effectively begin to answer questions about the relationship between environmental factors and human health and the effectiveness of interventions to minimize or prevent impact, we must first be able to identify environmental hazards, measure population exposures, and track health conditions that may be related to the environment. The coordinated collection, analysis and dissemination of data require:

- Development and implementation of a statewide comprehensive environmental health information system, integrated with the clinical health information systems.
- Inclusion of selected environmental exposure information in health service providers' clinical registries, with unidentifiable data made available for public health planning.
- Inclusion in plans for a new state health laboratory of an information system to track test results (e.g. drinking water contamination and other environmental hazards).

- Establishment of routine monitoring of and reporting to the public on environmental risks and test results, using data from the above information systems.

In combination, these actions would allow effective identification of individuals and populations at risk and effective targeting of prevention efforts. Information, gathered over time, would allow risk assessments that have not been available to date. This will lead to earlier recognition of environmental factors that often take years to cause damage and affect only a small proportion of the exposed population. Similarly, contamination test results taken from a large number of locations over a short span of time could be correlated to show patterns of pollution. The development of a capacity to track drinking water test results by the state health laboratory, for example, would allow analysis of risk by neighborhood and region over time and thus allow better public health surveillance of targeted geographical areas and sensitive populations. See Chapter: Integrated Health Information Systems.

## Professional and Public Education

Health care providers and public health professionals are often questioned regarding the safety or risks of drinking or swimming water, food, air quality and other environmental factors. Too few are trained and equipped to effectively answer these questions. The environmental components of professional education for medical and public health practitioner's needs to be enhanced, and practice-level computer systems that are designed to provide decision support must include necessary, relevant and up-to-date environmental health information. The public also needs better information about risks from environmental exposures to better assess risks within their homes and communities and to take appropriate action to reduce those risks.

## Organizational and Systems Capacity

Preventing, monitoring, reducing and eliminating disease related to interaction with the environment requires coordination among key agency and community sectors in providing oversight and management of environmental health policies, programs, responses and communication with the public.

Vermont faces the same fragmentation of environmental health authority, expertise, and responses that is found throughout the United States. The farm-based processing of agricultural products, for example, rests with the Agency of Agriculture, Food and Markets, but once the food enters a restaurant or causes an outbreak of illness, the jurisdiction shifts to the Department of Health. Public water supplies are regulated by the Department of Environmental Conservation, while private supplies and water-related illnesses are the Health Department's concern. The responsibility for air quality is different for indoor and outdoor air, and the state entity responding to complaints of environmental concerns in the schools might depend upon whether teachers or students became ill.

This distribution of authority is not necessarily, but it requires a greater degree of cooperation, coordination and information exchange than currently exists.

## *Health Promotion (Disease Prevention)*

*Outcome desired*: Vermonters of all ages are actively engaged in maintaining and improving their own health and the health of their families and community.

*Action needed:*

- Put knowledge into action by Vermonters adopting health behaviors that lead to decreased risk of disease and its complications and eventually to reduced costs of health care.
- Develop programs and policies within communities that actively promote access to health-promoting services, including non-smoking environments, healthy food choices and daily physical activity.
- Ensure provision of the clinical preventive services shown to improve healthy behaviors, including counseling on smoking cessation, improved diet, regular exercise, and safe sexual practices.
- Develop and promote common messages that convey the importance of healthy lifestyles and encourage culturally appropriate behavior changes that reduce risk and enhance health.

*Background:*
Health promotion includes an array of interventions aimed at encouraging people to choose healthier behaviors. It encompasses multiple strategies aimed at providing health education, skill development and support services. People seldom *decide* to adopt unhealthy lifestyles. Rather, unhealthy behaviors arise from the experience and social contexts to which people are exposed. Once habits are established, changing them and finding equal support for new norms is exceedingly difficult.

It is estimated that behavioral factors are associated with more than half of all deaths in the United States each year.[14] Figure 12

Figure 12
**Leading Causes of Death and Associated Behaviors**

| Number | Cause of Death | Health Behaviors |
|---|---|---|
| **1** | Heart disease | Smoking, diet, inactivity, obesity, stress, non-use of medications |
| **3** | Stroke | |
| **2** | Cancer | Tobacco, alcohol, diet, obesity, sun exposure, sexually transmitted disease, non-use of screening tests |
| **4** | Chronic obstructive pulmonary disease | Smoking, exposure to tobacco smoke and other airborne particles |
| **5** | Injury | Motor vehicle: alcohol, safety restraints, excess speed |
| | | Other: alcohol, smoking, home hazards, firearms, violence |
| **6** | Diabetes | Obesity, diet, inactivity, non-use of medications |
| **7** | Alzheimer's | None known |
| **8** | Pneumonia & influenza | Smoking, non-use of preventive immunizations |
| **9** | Suicide | Alcohol, firearms, drugs, mental health problems |
| **10** | Liver disease | Alcohol, intravenous drug use, exposure to chemical agents |

[14] Mokdad AH, Marks JS, Stroup DF, Gerberding JL. Actual Causes of Death in the United States, 2000. *JAMA* 291; 1238. 2004.

illustrates the relationship between behaviors and the leading causes of death.

Health promotion services may be directed at individuals or at the entire population to prevent disease and disability from occurring, but also to help those who already have chronic conditions to prevent complications of those conditions.

The traditional strategy of health promotion has been health education aimed at expanding the knowledge base for making decisions about health behavior and health care. Although this remains a cornerstone of health promotion, there is growing recognition that knowledge alone is not adequate. Of the estimated 92,500 Vermont adults who smoke,[15] there are probably very few that do not know that it is a dangerous habit, and 63 percent of current smokers would like to quit in the next six months.[16]

As discussed elsewhere in this plan, the community and social environment must be changed to make it easier for individuals to make healthy choices than to make unhealthy ones. In the past decade, we have seen the powerful impact of a changed social tolerance that has led to lower rates of driving while impaired, smoke-free public places as the norm, and greater use of safety restraints and personal protective equipment in automobiles. Without the skills to make positive choices and to resist unhealthy choices, however, knowledge and social norms will not be enough.

## Tobacco

Tobacco use is responsible for more deaths in the United States each year than any other cause.[17] With ambitious goals of reducing smoking among youth and adults by 50 percent between 2000 and 2010 and of reducing exposure of all Vermonters to secondhand smoke, the Vermont Tobacco Control Program includes community-based coalitions, school prevention curricula and policies, quit-smoking services, mass media and public education, and the enforcement of youth access laws.

While each of these components is individually effective, the impact of any one intervention is greatly enhanced when several components are included and designed to reinforce each other. Vermont's program, which began in July 2000, is showing progress. Smoking rates among Vermont youth have steadily dropped from 31 percent in 1999 to 20 percent in 2003.[18] Adult smoking rates have decreased from 23 percent to 19.5 percent,[19] and there are approximately 10,000 fewer smokers today than in the first year of the program. Further, 57 percent of Vermont smokers with children reported prohibiting smoking in the home in 2003, up from 43 percent in 2001. And 74 percent of Vermont smokers with children reported prohibiting smoking in the car in 2003, up from 54 percent in 2001.[20]

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[15] Vermont Department of Health (VDH). *Behavioral Risk Factor Surveillance Survey*. 2003
[16] VDH. *Adult Tobacco Survey*. 2003.
[17] Mokdad AH, *Actual Causes of Death*.
[18] VDH. Vermont Youth Risk Behavior Survey. 1999 and 2003
[19] VDH. *Behavioral Risk Factor Surveillance Survey*.
[20] VDH. *Adult Tobacco Survey*. 2001 and 2003.

Despite these gains, much work is still to be done to achieve the Healthy Vermonters 2010 objectives for reducing tobacco use. Twenty-one coalitions, funded to make ***not smoking*** the norm in their community, are in place. Each of these coalitions serves as the hub for local tobacco control activities and each works with an average of 26 additional organizations to reduce tobacco use. Vermont Kids Against Tobacco (VKATS) involves more than 3,000 students in grades five through eight at 56 sites, and Our Voices Xposed (OVX) is in place in 16 sites to serve high school age youth. These coalitions demonstrate the type of community activity called for throughout this plan.

Work targeted at changing the environment to support *not smoking* includes media efforts and the enforcement of laws restricting access to tobacco products and limiting places where people may smoke. These programs have been successful, but face a continuing struggle to counteract the messages from mass media, including movies and print ads, that promote smoking as the norm.

## Nutrition and Physical Activity

A combination of poor diet and physical inactivity is the second leading cause of preventable death in Vermont, and recent surveys indicate that this combination may in time surpass tobacco as the leading cause of preventable death.[21] A good diet is one characterized by a wide variety of foods, to ensure an adequate intake of essential nutrients, and by moderation, to ensure that excesses don't lead to chronic disease and other health problems. The essentials of a good diet are summarized in Figure 13.

Figure 13
**Essentials of a good diet**
(from Dietary Guidelines for Americans-2005)

- Contains a variety of foods from all food groups.
- Moderate in calories, to achieve a healthy weight.
- Includes at least five servings of fruits and vegetables each day.
- Includes three servings of whole-grain products.
- Includes 3 cups of non-fat or low-fat milk or equivalent dairy products.
- Low in saturated fat, trans fat, and cholesterol, and moderate in total fat.
- Low in salt.

A lack of physical activity has a significant impact on the population's health status. Only 55 percent of Vermont adults report meeting the recommendations for physical activity.[22] The consequences of too little physical activity include reduced heart and lung function, increased risk of falls, particularly in the elderly, and weight gain.

Obesity is the most prevalent and serious result of the combination of too much food and too little exercise. Nearly one in five Vermont adults are obese.[23] Among youth, 11 percent of 8-12$^{th}$ grade students are overweight, and another 15 percent at high risk of becoming overweight. [24] Among preschool children in the Vermont WIC program, the prevalence of overweight has more

[21] Mokdad. *Actual Causes of Death.*
[22] VDH. *Behavioral Risk Factor Surveillance Survey.*
[23] VDH. Behavioral Risk Factor Surveillance Survey.
[24] VDH. *Youth Risk Behavior Survey*. 2003

than doubled from 6 percent to 13 percent in the past 20 years.[25] The consequences of obesity include a shorter life expectancy related to a variety of resulting chronic conditions such as heart disease, diabetes, stroke, and some types of cancer. In addition to physiological changes, obesity has a significant impact on mobility and quality of life. It is directly related to osteoarthritis, due to excess body weight putting stress on joints, which can further curtail physical activity. Obesity is also related to an increased risk for psychological disorders such as depression and difficulties due to social stigmatization.

In the midst of all of this plenty, the problem of hunger and food insecurity is still very real. In 2003, almost 10 percent of Vermont adults reported not having enough food or money to buy food,[26] and the number of families that use community food assistance programs has continued to increase steadily. Hunger and malnourishment are prevalent among children and adults who are above a healthy weight. Families that cannot afford or do not have access to healthy foods may choose lower price foods that are higher in calories and less nutritious.

It is essential that Vermonters come to terms with the reality that their own choices about diet and exercise are in large part responsible for the rapidly increasing prevalence of chronic disease and the escalating costs of health care. There is strong evidence that lifestyle modifications can have a positive health benefit. As noted throughout this plan, changing behavior, whether to prevent or to treat a chronic condition, is not easy. It requires not only that people become educated about what constitutes a good diet and appropriate exercise, but also that they learn the skills to make and sustain change and that they have the guidance and support of their health care providers and communities.

One of the biggest barriers to behavior change in Vermont is the conflicting messages that people experience regarding diet and exercise. The social environment encourages more food, larger portions, and high-fat, high-calorie choices through the media and marketing strategies. This is often reinforced at the community level through benefit suppers, bake sales, candy sales and other activities without alternatives for healthy choices. Exercise is discouraged by placing homes and stores far apart, by the lack of sidewalks or bike paths for safe exercise, and by limited options for winter activity. Public health agencies and communities need to redouble their efforts to counter these messages and promote healthy food choices and exercise.

Improved diet, weight loss and more exercise have been demonstrated to be effective in preventing Type 2 diabetes, high blood pressure and heart disease, yet few health care providers offer or refer for nutrition or exercise services. Currently there is little insurance coverage for health promotion. Medicare covers three hours of nutrition education a year and only for individuals with diagnosed diabetes or renal disease. Medicaid provides coverage only for people with diabetes. Private insurers may offer limited coverage for nutrition services for diagnosed conditions, but the reimbursement and the number of covered visits varies widely. No Vermont insurer currently provides coverage for preventive nutrition services. Given the increasing burden of chronic disease on the health care system and the evidence that lifestyle changes can have an impact, healthy lifestyle changes should be encouraged for all Vermonters.

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[25] CDC. *Pediatric Nutrition Surveillance Report for Vermont.* 2003.
[26] VDH. *Behavioral Risk Factor Surveillance Survey.*

## Other Behaviors

Tobacco use and poor diet and physical inactivity are responsible for about one third of deaths in the United States. Other behaviors also contribute significantly to current death rates include:

- Alcohol consumption accounts for approximately 3.5 percent of deaths in the U.S. These include deaths from alcohol related motor vehicle crashes, cancers of the upper respiratory tract and breast cancer; stroke, hypertensive heart disease liver disease and cirrhosis. See Chapter: Substance Abuse.
- Motor vehicles crashes are responsible for nearly 3 percent of deaths in the U.S (where alcohol is not a factor). See Chapter: Injury.
- Firearms are associated with approximately one percent of deaths each year in the U.S. These deaths include suicide, homicide, unintentional discharge and legal interventions. See Chapter: Mental Health.
- Illicit use of drugs is associated with suicide, homicide, mother-vehicle injury, HIV infection, hepatitis and mental illness. It contributes to nearly one percent of all deaths in the U.S. each year. See Chapters: Infectious Disease and Substance Abuse.[27]

[27] Mokdad. Actual Causes of Death .

## *Infectious Disease*

Outcome desired: Rates of preventable infections in the community and in health care facilities are reduced.

*Action needed:*

- Identify and implement strategies to ensure that a comprehensive immunization program for all Vermont children and high risk adults is maintained.
- Improve access to and use of community-based services to reduce the occurrence of HIV, Hepatitis C and other infections among high risk populations.
- Ensure that a comprehensive, evidence-based system for controlling infectious diseases is fully implemented in every Vermont health care facility.

*Background:*
Infectious diseases are caused by the action of a microorganism. Microorganisms are classified in several groups: bacteria (e.g. tuberculosis), viruses (e.g. AIDS), fungi (e.g., histoplasmosis), and parasites (e.g., malaria). Though not well understood, it is believed that prions, a type of protein, may represent another group of microorganisms capable of causing disease (e.g., "mad cow disease"). A characteristic of all of these disease-causing microorganisms is their potential spread to many people through person-to-person contact, food, air, or water contamination, insect bites, animal exposure and other means.

Throughout the past century, through improvements in sanitation and hygiene, control of animals and disease-carrying vectors such as mosquitoes, and advancements in medical science such as vaccines and antibiotics, the impact that infectious diseases had in terms of contributing to illness and death lessened dramatically in the United States and other developed countries. In 1900, the top three causes of death in the United States were attributed to infectious diseases. Taken together, pneumonia, tuberculosis, and diarrheal illness accounted for one-third of all deaths, 40 percent of these deaths in children younger than 5 years of age. One century later, only pneumonia and influenza can be included among the top 10 causes of death, together contributing to the eighth leading cause of death.[28]

Despite these dramatic advancements, several challenges have emerged to halt what had been a growing belief that infectious diseases could be entirely eliminated. Among these challenges:

- The emergence of new infectious diseases (HIV/AIDS is but one of scores of examples).
- The ever-increasing number of people, whose immune systems are compromised, secondary to disease or medications, making these persons at greater risk for infection (e.g., people receiving chemotherapy for cancer or anti-rejection drugs after transplants).
- The growth in the numbers and types of microorganisms that are resistant to antimicrobial agents.

[28] National Center for Health Statistics: www.cdc.gov/nchs

There are other challenges to our ability to prevent and control infectious diseases. Some are specific to Vermont, while others are more general, but still have an impact here. Among them: the growth in hospital-acquired infections; the disproportionate affect that some infectious diseases have on certain groups; and continued challenges in ensuring that children and high-risk adults are protected against vaccine-preventable disease.

## Community-acquired Infections

Certain groups, often as a result of personal behaviors, are at great risk for acquiring certain infectious diseases. For example, persons who inject illicit drugs are at great risk for HIV, hepatitis B and hepatitis C. Compared to the population at large, those who inject illicit drugs are at greatest risk of acquiring hepatitis C and are at second-greatest risk for acquiring HIV. These groups are, unfortunately, less likely to have access to medical services for prevention and treatment, resulting in a continued risk for acquiring disease and an increased risk for a more severe outcome of their disease. Hepatitis C is the leading cause of chronic liver disease and the leading reason for liver transplantation in the United States.

Although much is known about these diseases and the behaviors that facilitate their spread, and although resources, programs and services are available to prevent and/or treat these infections, many challenges continue to exist and sustain the epidemics of HIV and hepatitis C among these affected groups. Unlike many other infectious diseases, there are no vaccines to prevent infection with HIV and hepatitis C. Additionally, all persons who become infected with HIV, and approximately three-quarters of those who become infected with hepatitis C never resolve their infections, leading to long-term complications as well as the continued threat for transmission of the infectious agent to others. And, although medications exist to treat those with these diseases, there is no cure for HIV, and the treatment for hepatitis C is costly, causes considerable side-effects, and offers no guarantee for a cure.

## Immunization Programs

Vermont is presently one of but a select number of states where all children (birth through 18 years of age) are provided, regardless of eligibility, with the recommended vaccinations free of charge. This so-called “universal” system for delivery of vaccinations is one of the most effective means by which to ensure that all children have access to and are provided with age-appropriate vaccinations. Indeed, as a result of this system, Vermont has consistently been among the top states in vaccination coverage levels.

- 84 percent of Vermont children 19 to 35 months of age are up to date on their immunizations, compared to a national average of 79 percent.[29]
- With 100 percent of public schools and 97.85 percent of all schools reporting, immunization rates[30] remain very high with requirements met for:
  - Polio vaccine, received by 98.6 percent.
  - Measles, mumps, rubella (MMR), received by 97.8 percent.
  - Tetanus containing vaccine, received by 96.7 percent.
  - Hepatitis B, received by 91.45 percent.

[29] National Immunization Survey: www.cdc.gov/nip/data/
[30] Vermont Department of Health. Unpublished annual school report data.

- Reports from licensed childcare facilities[31] demonstrate that, of 10,326 children over 19 months of age enrolled in licensed childcare, about 89 percent were up to date on required immunizations, but that only 63.5 percent were immunized against varicella which is not currently required. Within this group, 248 cases of varicella disease were reported.

Presently, this system is supported largely through the use of federal funds, with no or only limited state funds contributing to the purchase of vaccine. New strategies will be needed to ensure adequate funding in the future.

Influenza and pneumonia account for nearly 20 deaths per 100,000 Vermonters, placing them among the 10 leading causes of death in the State.[32] The majority of these deaths occur in people over the age of 65. Further, influenza and pneumonia exact a heavy toll in the use of hospital and physician services, as well as lost work days. For most people, recovery is relatively quick, but for people with chronic conditions, influenza is more likely to develop into pneumonia; these individuals are likely to be sicker and their recovery time longer. Vaccines are available that reduce the likelihood of contracting influenza and pneumonia, and lessen the ill effects if illness does occur.

Healthy Vermonters 2010 has set target objectives immunization levels for influenza and pneumonia. While Vermont does better than many states, there is much work to be done:

- In 2003, 74 percent of non-institutionalized adults over the age of 65 had been immunized against influenza within the past year. The Healthy Vermonters 2010 objective is 90 percent. The U.S. figure is 67 percent.
- 66 percent of non-institutionalized adults reported having ever had a pneumonia shot.[33] The Healthy Vermonters 2010 objective is 90 percent; only 62.5 percent of U.S. adults have had a pneumonia shot.

In the 2004-2005 influenza vaccine season, a severe vaccine shortage was experienced in Vermont, which resulted in a major effort to redistribute limited vaccine to individuals at highest risk — the very young, the elderly, and anyone with significant medical problems. The Vermont Department of Health has contingency plans in place, in the event this occurs again. Additional efforts are needed, however, to increase public understanding and acceptance of immunization. Health care sector and provider entities also need to develop the technical ability to keep track of those who have been and should be immunized, and to develop effective outreach strategies.

## Facility-Acquired Infections

The health and recovery of patients using our health care facilities is increasingly jeopardized by hospital-acquired infections, now the most common complication affecting hospitalized patients. Such infections also commonly occur among residents of long-term care facilities. Under regulations by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and/or Centers for Medicare and Medicaid Services (CMS) regulation, each Vermont hospital presently conducts surveillance on infections that occur within the facility. This process is

[31] Vermont Department of Health. Unpublished annual licensed child care data.
[32] VDH. *Vital Statistics.* 2002.
[33] VDH. *Behavioral Risk Factor Surveillance Survey*

determined by each hospital, so scope varies and there are no uniform standards for tracking and reporting infections. On the national level, an estimated 5 to 10 percent of patients admitted to acute care hospitals become infected with one or more microorganisms.[34] A growing number of these microorganisms are resistant to one or more antibiotics.

The very nature of hospitals, caring for sick people, performing invasive procedures and employing hundreds of people, makes it extremely difficult to reduce the rate of infections. As an example, appropriate hand-hygiene, considered one of the more simple and effective means of preventing infections, is not widely or consistently practiced, due in part to the behavior of individual care takers, but also due to staff shortages, staffing patterns, poor access to hand-washing stations and/or products, poor training, lack of monitoring and lack of enforcement of hand-washing recommendations.

Implementation of quality assurance programs directed at reducing infections have proven effective in most instances. Strategies that work include the use of standardized tools for detecting and monitoring the type, number and rate of infections; clearly stated standards for infection control; implementation of a surveillance system to monitor performance and intervene when indicated; comprehensive staff training programs; and unambiguous administrative support for the program. In Vermont, the Vermont Program for Quality in Health Care and Vermont hospitals are developing guidelines for hospital infection control. These guidelines will be used by hospitals and nursing homes to improve their own policies and procedures and can provide the basis for ensuring accountability to patients and the public.

[34] Burke, JP. "Infection control – a problem for patient safety." *N Engl J Med.* 2003; 348:651-656.

## *Injury*

*Outcome*: Injury in Vermont will cause less physical and emotional disability and will result in fewer deaths.

*Action needed:*

- Adopt the U.S. Preventive Health Services Task Force recommendations for screening to identify people at risk for injury in the primary care setting.
- Adopt community-based injury-reduction strategies that lead to broad-based acceptance of protective and less risky behaviors such as the use of motor vehicle restraints, further reduction in the frequency of vehicle operation while impaired by alcohol and drugs, and activities leading to enhanced physical fitness among elders.
- Develop comprehensive, state-coordinated, community-based intimate partner violence prevention and victim service programs.

*Background:*
Traditionally, there has been a tendency to accept the notion that unintentional injuries are just accidents, random acts of fate or the result of individual carelessness rather than a phenomenon to be analyzed, understood and prevented. Research and experience show, however, that many injuries are completely preventable. Both intentional and unintentional injuries, the human suffering they cause and the great financial costs that come with them, should be recognized as a priority public health problem to be solved.

Unintentional injuries are the leading cause of death among Vermonters aged 1 to 44 and the fifth leading cause of death among Vermonters of all ages.[35] The top three causes of deaths in this category are motor vehicle crashes, accidental falls and unintentional poisonings respectively. Intentional injury includes suicide and homicide. Suicide is the 9th leading cause of death in Vermont. See Chapter: Mental Health.

There are several ways in which injury risk factors can be decreased. A change of risky behavior or a prohibition against creating dangerous environments can be mandated by law (e.g. speed limits, building codes, domestic partner restraining orders). Automatic protection can be provided by product or environmental design (e.g. blade guards on saws and railings of a proper height on porches and balconies). Efforts can be made to educate people at risk of injuring themselves or others to change their behavior (e.g. hunter safety courses or training for health care workers).

A fourth element that must be addressed to reduce risk factors for injury is the role of community, culture and subculture. Epidemiologic investigations have shown how cultural influences affect health in many ways. In the area of injury prevention, community acceptance of alcohol or substance abuse, attitudes toward aggression, and attitudes about firearm safety are

[35] National Center for Injury Prevention and Control'. Injury Statistics Query and Reporting System (WISQARS). www.cdc.gov/ncipc/wisqars/

examples of community/cultural norms that have a powerful influence on the overall risk of injury.

Based on morbidity and mortality data, the Vermont Department of Health has identified the following as priority injury prevention focus areas: motor vehicle occupant protection from crashes, accidental falls, unintentional poisoning, and violence prevention.

## Motor Vehicle Injury Prevention

Motor vehicle crashes are among the leading causes of death for Vermonters in all age groups. From 1997 through 2001, Vermont crash studies show that 435 people died on Vermont roadways, and 35,597 were injured.[36] According to an economic study, the total cost of all motor vehicle crashes in the state during the past five years was a staggering $1.2 billion. Just one fatality costs the economy an average of more than $825,000.[37]

Seat belts are the most effective safety devices in vehicles today, estimated to save 11,900 lives and prevent 325,000 injuries nationally each year.[38] In Vermont, 80.3 percent of adults aged 18 and up report always using a seat belt;[39] and 84 percent of youth (grades 8 through 12) report always or nearly always using a seat belt.[40] The Healthy Vermonters 2010 goal for both populations is 92 percent. Seat belt use rates are higher in states with standard seat belt laws (a motorist can be stopped and cited for failure to use a seatbelt) than in states with secondary enforcement laws like Vermont (a motorist can be cited for failure to use a seatbelt only if stopped for another reason).

The effort to get people to use child safety seats in motor vehicles provides an example of how multiple strategies can be implemented in one program to prevent injuries in children due to motor vehicle crashes: 1) Vermont law requires that all children up to the age of eight be properly restrained in a federally approved child restraining system; 2) child safety seats have been designed to be extremely effective, when used correctly, in preventing or reducing injuries sustained in a crash; 3) education is necessary to persuade parents to secure their children in car seats each time they ride in a motor vehicle.

## Prevention of Falls

Falls accounted for 72 Vermont deaths in 2002, including 61 deaths among people over the age of 65. More than one-third of adults aged 65 years and older fall each year,[41] and these falls are associated with injury, loss of mobility, long recuperation periods and, in many cases, an

[36] VDH. Vital Statistics Annual Reports, 1997-2001
[37] Vermont Department of Public Safety. Governors Highway Safety Program. http://www.dps.state.vt.us/cjs/ghsp/clickit.html
[38] Advocates for Highway and Auto Safety. 2005 Roadmap to State Highway Safety Laws. 2004. http://saferoads.org/Roadmap2005.pdf
[39] VDH. *Behavioral Risk Factor Surveillance Survey*
[40] VDH. *Youth Risk Behavior Survey*. 2003
[41] National Governors Association. *Healthy Aging and States: Making Wellness the Rule, not the Exception*. July 2004.

irreversible decline in health. Just the fear of falling can have the effect of curtailing activities, including healthy exercise, and of negatively affecting quality of life.

The prevention of falls requires an assessment of the underlying causes of falls, particularly for older adults, and the modification of the environment or other factors to eliminate or mitigate the risks and promote protective factors. Underlying causes of falls include the presence of loose items or uneven surfaces on the floor, as well as the side effects of medications that can cause dizziness and confusion. Alcohol use can be a factor, as can foot problems, general weakness, and arthritis. Falls are associated with bone fracture, especially hip fracture, and with loss of bone density and osteoporosis, especially among women.

Factors known to reduce risk of falls in the elderly include physical fitness and regular exercise; appropriate correction of vision problems; regular engagement in community and social activities; and careful attention to the side effects of medication.

## Intimate Partner Violence Prevention

Intimate partner violence (also referred to as domestic violence) is a pattern of assaultive and coercive behaviors that may include physical violence, psychological abuse, sexual abuse, progressive social isolation, stalking, deprivation, intimidation and threats. Intimate partner violence has a significant, negative impact on the physical and mental health of victims/survivors and their children. Short-term and long-term health consequences include injuries, chronic pain, gastro-intestinal problems, sexually transmitted infections, pregnancy complications, depression, anxiety, post-traumatic stress disorder, suicidal ideation and substance abuse. Children exposed to intimate partner violence are more likely to exhibit physical, mental and behavioral problems and engage in health injurious behaviors.

Health care professionals are often the first and sometimes the only outsiders that witness the impact of intimate partner violence and have an opportunity to reach out to victims/survivors. Careful screening, counseling and/or referral by primary care providers has been identified as an effective strategy for reducing injury related to intimate partner violence.[42] Collaborating with other systems as part of a coordinated community response, the health care sector can make significant contributions toward the health and safety of victims and their families. See Chapters: Communities and Prevention as a Priority.

An integrated approach to prevention of intimate partner violence can be informed by better awareness and timely assessments of the multiple factors that predispose some individuals to violent words and/or deeds in periods of frustration. This approach will also be effective in addressing other interpersonal violence issues including bullying, harassment, child abuse, and elder abuse.

General community (cultural), health and social system efforts can each contribute to healthy modification of expectations and roles in interpersonal relations and to timely identification of potential “fuse” issues and appropriate responses to pressing needs.

[42] AHRQ. Clinical Preventive Services: Injury and Violence. 2004. www.ahrq.gov/clinic/cps3dix.htm#injury

# Vermont State Health Plan
# 2005

## Part 5: Focus Areas - B

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## *Long-Term Care*

*Outcome desired*: Vermonters who need long-term care and support will receive services that reflect their personal values and preferences in the least restrictive environment possible.

*Action needed:*

- Develop and use informed decision-making processes to assist people make long-term care decisions that best support their needs, values and preferences.
- Identify and fund strategies that lead to a well-trained, stable workforce in home and community settings.
- Assure that communities have adequate support services in place for family caregivers, including access to adult day centers, respite and support groups.

*Background:*
The term "long-term care" is used to describe the care and support that older people and people with disabilities need in order to perform their everyday activities, whether they are residents of a nursing facility or living in home or community-based settings. This support may include hands-on assistance with eating, bathing, using the toilet, dressing, and transferring from bed to chair, as well as assistance with tasks such as meal preparation, household chores and medication management. It also may include emotional support and other assistance in increasing independence and self-sufficiency through supported employment and volunteer activities.

### People with Developmental Disabilities

People with developmental disabilities include those with mental retardation (IQ 70 or below), or pervasive developmental disorder, and substantial deficits in adaptive behavior. An estimated 11,500 Vermonters have developmental disabilities. An estimated 110 Vermont children are born each year with developmental disabilities adding approximately 100 per year, net of those who die or leave services. The growing number of individuals diagnosed with Autism Spectrum Disorders is also increasing the demand for services. Work has just begun to identify the number of people potentially in need of these services.

Generally, people with developmental disabilities require life long services and support including:

- Individualized community support services to promote skill development and promote positive growth
- Employment assistance to help people get & keep jobs
- Home based services to help people in and around their home; hourly or 24 hours/day
- Respite in the form of hourly or daily short term relief for caregivers
- Transportation

- Clinical interventions including assessment, therapeutic, medication or medical supports
- Crisis services for psychological, emotional, behavioral crisis
- Service planning and coordination to assist individuals and their families in developing, choosing, accessing and monitoring services

Eligibility for services in Vermont requires that a person meet this definition as well as meeting the funding priorities contained in the State System of Care Plan. In FY 2004, the Department of Aging and Independent Living (DAIL), Division of Disability and Aging Services provided public funded supports to 3,024 Vermonters, representing 28 percent of all people with developmental disabilities. One-third of those served were under the age of 22.

Among those who do not, are those who are able to function well in their communities without additional support, as well as a number who do not meet one of the funding priorities and/or are unaware of the benefits for which they could be eligible. Many individuals with developmental disabilities live at home with their parents and receive minimal services. However, more than 22 percent of those parents are aged 60 or older, and when they are no longer able to provide the needed supports, pressure to serve people with full, 24-hour-a-day; seven-days-a-week residential services will increase. [1]

Support services for the developmentally disabled population are provided through DAIL contracts with community mental health or other specialized service agencies.
Children with developmental disabilities also receive services from the Department of Health, Programs for Children with Special Health Needs and from special education programs in the schools.

## Older Vermonters and Other Adults with Physical Disabilities

In the 2000 census 77,510 (13%) of Vermonters were over age 65; by 2020, there are expected to be 138,541 Vermonters (21% of the population) over age 65 (See Appendix F). Collectively, the older population has experienced, and continues to experience, improved health and longevity.[2] DAIL predicts a decline in the disability rate of almost 1 percent annually for Vermonters aged 65 and older during the period 2003 - 2008. At the same time, the prevalence of physical disability for the younger population is projected to climb at a rate of 3.1 percent annually until 2008, when it will slow to 2.6 percent.[3] These rate changes are due largely to technological and medical advances that make it possible for infants born with disabilities to live longer and for people who acquire a disability as a result of illness or injury to live longer.

In 1996, recognizing that many Vermonters living in nursing homes would prefer to live in less-expensive, non-institutional settings, and also recognizing that the State's long-term care expenditures were growing at an unsustainable rate, the Legislature directed state government to use its purchasing power to decrease the utilization of nursing homes and to develop more home

[1] Vermont Department of Developmental and Mental Health Services. *Developmental Services 2003 Annual Report.*
[2] VDH. *Healthy Vermonters 2010*
[3] Vermont Department of Aging and Independent Living. *Shaping the Future of Long Term Care & Independent Living 2003-201.* January 2004

and community-based services. As a result, Vermont has seen a marked shift in its long-term care system toward greater use of home and community-based care.

Since 1996, funding for the Medicaid home and community-based waivers for the aged and physically disabled increased more than four-fold and the number of people served has increased by 65 percent.

Savings from the decline in nursing facility utilization have been used to expand home and community-based services and programs, including residential alternatives. Since home and community-based services tend to be less expensive than institutional care, Vermont has been able to increase the number of people served and the variety and scope of available services.

Home and community-based services for older Vermonters and other adults with physical disabilities are provided by many non-profit and for-profit organizations, as well as by family and friends. The long-term care and support system consists of:

- Fourteen adult day centers (with 17 sites)
- Twelve Medicare-certified home health agencies
- Five area agencies on aging
- Private nursing services and private personal care agencies
- 110 residential care homes
- More than 1000 direct care providers who are employed directly by elders and persons with disabilities

## Home-care Workforce

Many Vermonters provide health care and support for adult family members and friends who, because of disabling illnesses or conditions, have limited ability to perform activities such as bathing, managing their medications and preparing meals. While informal and family caregivers provide most care to older people and other adults with disabilities, family care giving exacts a heavy emotional, physical and financial toll on caregivers, and depression is a common occupational hazard among people who are primary caregivers to patients with dementia.[4]

A significant portion of home based care is provided by paid workers. Many direct-service home care providers work under challenging conditions, earn low wages, work in conditions of social and professional isolation, and receive few benefits, all of which contribute to a high turnover rate and make life more difficult for consumers. This turnover also results in increased recruitment and training costs for providers, which eventually feeds into the rising cost of health care.

When a family's care giving capacity, if any, has been exhausted and direct care home-based services are not readily available, the alternative of institutional care in nursing homes results in significant, needless expense for residents who would prefer to be at home. Preventable physician and emergency department visits and hospital admissions also increase. Collectively,

[4] AHRQ Research Activities, No. 283, March 2004

these medically unnecessary social admissions to health care institutions also create unnecessary demands for extra staff, beds and infrastructure. Greater support for respite services could extend the capacity of family care giving at relatively little expense, thus lessening the unnecessary utilization of institutional services.

Greater investment in a well-trained, stable, in-home workforce would result in similarly significant savings, and as the average population increases in age, the need for this workforce will increase. Many states are designing and financing diverse strategies to support both informal family caregivers and paid direct-service home care workers, rebalancing their long-term care systems away from institutional care and toward strengthening integrated home and community-based services. Vermont has several such initiatives underway, and these should be supported and expanded.

## *Maternal and Child Health*

*Outcome Desired*: The special needs of infants, children, and women of child-bearing age are fully integrated into the model for lifelong prevention and care.

*Action needed:*

- Improve the incidence of healthy birth outcomes through early and adequate prenatal care; promote and support breastfeeding to provide optimal nutrition for all infants.
- Increase the quality of and access to health care for women in state custody; increase the access to and utilization of preventive and follow-up health care services for children in state custody.
- Ensure continuous monitoring and evaluation of the health care needs and health outcomes of pregnant women, infants, children and their families. This includes:
- Support and encourage child health providers to make available Medical and Dental Home services for all children and to provide the extended services which are needed for children with special health needs (CSHN), through policies, reimbursement practices and other means.
- Enhance access of CSHN and their families to allied health professionals whose specialized expertise improves management of problems identified by the medical home provider (e.g. dietitians, mental health providers, and neurodevelopmental interventionists). Payment for necessary services identified by the medical home provider should be allowed.

*Background:*
Caring for our society's women, infants, children and their families during their formative and potentially vulnerable years has been a public health focus and a priority for health care for generations. The prenatal, childhood and young adult stages of life offer the greatest opportunity for preservation of life-long health and prevention of disease and injury. It is critical that, as the general population ages and the needs of adults with chronic conditions increases, this focus not be lost.

By many measures, Vermont is viewed as an excellent place for families to live and to thrive. The infant average mortality rate for the period 2001 -2003 was 4.9 per 1,000 live births, which is nearing the Healthy Vermonters 2010 goal of 4.5. Vermont's annual rate of reported child abuse and neglect aged birth to 18 years is 240 incidents per 10,000 population, the sixth lowest rate in the nation. In 2003, 90.6 percent of Vermont's pregnant women received prenatal care in the first trimester of pregnancy, versus a national average of 84 percent. Vermont has one of the lowest national teen pregnancy rates at 19 per thousand (ages 15-17 in the year 2000).

In 2003, 89.5 percent of Vermont children were considered fully vaccinated, the national goal being 90 percent. Through the Dr. Dynasaur (Medicaid) program, Vermont provides government health insurance coverage intended to be sufficient to ensure financial access to health care for

all children, pregnant women and new mothers. Vermont is also one of six states to have met the breastfeeding goals set forth in the national Healthy People 2010.

However, troubling health indicators remain. Smoking is the major preventable contributor to low birth weight, yet 18.3 percent of Vermont's pregnant women smoke, compared to 11 percent nationally. Statewide data on alcohol use by pregnant women and its resultant effects on infants are sparse, but many indicators point to this as being an issue needing a system-wide response. In a recent state survey, more than a quarter of Vermont students reported using marijuana in the previous 30-day period and nearly that many reported binge drinking (5 or more drinks on the same occasion).[5] Other recent data are beginning to establish the prevalence of intimate partner violence and of sexual violence among teens. Breastfeeding rates among low-income women are well below those for the general population.

## Prenatal Care and Birth Outcomes

Evidence-based strategies to achieve optimal birth outcomes are, with some exceptions, well known. These include healthy behaviors to be adopted before pregnancy, planned pregnancies, early and adequate prenatal care, and, for high risk pregnancies, comprehensive follow-up and, when appropriate, transfer to a center with the expertise to care for critically ill newborns.

Birth outcomes are described by such measures as infant mortality, prematurity rates, and congenital anomalies. Many social conditions, environmental factors and personal behaviors can influence the outcomes of a pregnancy. Pregnancy can present an optimal time to support a woman and her family to learn about and adopt healthy habits and to seek needed services such as counseling and dental care. Adopting a healthy diet, achieving optimal weight gain, or stopping smoking will not be any easier during pregnancy, but interest in trying, and the potential to succeed if adequately supported, may be higher during this major life event. Other influences, including access to affordable and quality health care, safe housing, and coordinated community services, are also important in favorably influencing birth outcomes.

As is the case with chronic disease, there is a large body of evidence demonstrating the association of favorable outcomes with high-quality prenatal and delivery services and with widespread acceptance of these standards. It is critical that priority be given to: a) early, comprehensive prenatal care; b) timely transfer of high risk pregnant women and fragile newborn infants to regional neonatal/perinatal centers; c) a decrease in the prevalence of low birth weight, through smoking cessation services, management of multiple pregnancies, and appropriate weight gain and postpartum weight loss. In addition, access to contraceptive methods and reproductive services, which help achieve optimal birth spacing and a reduction in unintended pregnancies, counseling on use of folate, avoidance of alcohol, drugs and tobacco and other pre-pregnancy interventions are essential services that should be incorporated into practice, and supported by health care sector polices and reimbursement practices.

[5] VDH. *Youth Risk Behavior Survey*. 2003

## Family and Child Health

Families are the most important factor in child health. The health behaviors that are modeled in the home, the values about health and health care that shape attitudes about health and the capacity of family members to nurture and promote positive health form the foundation for life. All other components of the health system should recognize and accommodate this fact.

Income, education, teen pregnancy and single parenting are all important determinants of a family's health values and shape their health behaviors. When low income forces a family to focus on the basics, it becomes difficult, and sometimes impossible, to focus on long-term health outcomes; access to food, any food, is more important than its fat or nutrient content, and the short-term stress reduction of cigarettes may be more important than the long-term consequences of clean air or lung cancer.

A medical home is not a building, house, or hospital, but rather an approach to providing consistent, comprehensive health care services in a high-quality and cost-effective manner. Children and their families who have a medical home receive the care that they need from a pediatrician or physician whom they know and trust. The pediatric health care professionals and parents act as partners in a medical home to identify and access all the medical and non-medical services needed to help children and their families achieve their maximum potential. Services include information, skills development and incentives for families to adopt risk-factor reduction and lifestyle patterns which encourage positive nutrition and exercise habits, avoidance of sexually transmitted diseases, drugs and obesity.

Building Bright Futures: Vermont's Alliance for Children is a state-private partnership to foster collaboration among health, education, and social services to develop a coordinated, early childhood system of care for enhancing school readiness. In its work, this public-private partnership continuously monitors and evaluates the health care needs and health outcomes of pregnant women and infants, children and their families.

Community supports for families in stress, be it from poverty, ill health, separation or other factors, are essential to ensuring that children grow into healthy adults with better health habits and a recognition of their role as their personal health care provider.

Many of the special health problems of children are noted throughout this plan. These include the growing rate of child obesity, need for mentoring services in the community, injury prevention, mental health, substance abuse prevention and treatment and other issues. Like adults, children need a health system that integrates health care with public health and the community, focuses on prevention, ensures access to services and is characterized by high quality, accountable services. Unlike adults, children cannot advocate for these services themselves, so it becomes incumbent on their families and schools, their health providers and other adults to assume this role for them.

## School Health

Public school education has changed significantly over the past several decades, and with these changes has come the recognition that schools are in an optimal position to play a strategic role in promoting and protecting the health of children and youth.

The federal Centers for Disease Control and Prevention (CDC) have identified six preventable risk behaviors that are often established in childhood. [6] They include:

- tobacco use
- unhealthy eating
- inadequate physical activity
- alcohol and other drug use
- sexual behaviors that result in HIV infection, other sexually transmitted diseases or unintended pregnancies
- behaviors that result in violence and unintentional injuries, including those sustained in motor vehicle crashes

With the support of families, schools and communities working together, the coordinated approach to school health improves students' health and their capacity to learn. This approach includes promoting a health education curriculum that is designed to motivate and assist students to maintain and improve their health, to prevent disease, and to reduce health-related risk behaviors by demonstrating increasingly sophisticated health-related knowledge, skills and practices.

In 1978, 1983, and again in 1988 (amendment to 1978 law), the Vermont Legislature passed laws addressing comprehensive health education in primary and secondary schools.[7] Rules promulgated by the Vermont Department of Education (DOE) in 1999 support the development of standards-based health education and assessment. According to the DOE standards, all students shall be taught the essential knowledge and skills they need to become health literate, to make health-enhancing choices, and to avoid behaviors that can damage their health and wellbeing.

Due to increasing financial demands on school budgets, however, both health services and health education are at increased risk of being cut from school budgets. Good laws, rules and guidelines for comprehensive health education are in place, but resources are short and compliance is far from universal.

In addition to separate health education courses taught by qualified health educators, health instruction should be integrated into physical education, family, consumer science and other content areas. Science and math courses, for example, should include the practical application of

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[6] CDC. Healthy Youth! Health Topics. Six Critical Health Behaviors. Hwww.cdc.gov/HealthyYouth/healthtopics/H

[7] Comprehensive Health Education Law 16 V.S.A. § 131; and,
Alcohol and Drug Prevention Education Programs 16 V.S.A. § 909.

the analytical skills necessary to assess health risks, the probability and mechanics of exposure to infection, and the arithmetical basis of insurance claims and premiums. Students must have the opportunity to apply their critical thinking skills to the analyses of such things as magazine ads for tobacco and alcohol and television promotions for brand-name pharmaceuticals and nutritionally deficient foods.

The comprehensive, coordinated school health approach reinforces students' adoption of health-enhancing behaviors by encouraging school staff to model healthy life styles. All school faculty and staff become responsible in this system-wide approach for ensuring that the school environment and school climate promote consistent health messages. Vermont schools should model health behaviors by ensuring the nutritional quality of food served or vended, by providing daily opportunities for physical education, and by enforcing appropriate policies about such things as substance abuse and conflict resolution.

Such coordination, however, requires skilled staff time sufficient to coordinate faculty and staff around health issues. It also requires some common sense regarding issues such as freedom of choice at the school candy machine. No one would think of excusing the sale of guns or tobacco in our schools under the guise of allowing students to learn about mature decision making. There should be no school-sanctioned offering of unhealthy foods and beverages on school premises or at school events unless it is for the express purpose of demonstrating that what is taught in the classroom doesn't really matter.

In economic terms, such a high-quality, well-coordinated school health system is amply justified on the basis of short-term benefits for student learning and long-term benefits for public health.

## Children with Special Health Needs [CSHN]

Children with special health care needs are those who have, or are at risk for, chronic physical, developmental, behavioral, or emotional conditions that require health and related services of a type or amount beyond that required of children generally. It is estimated that about 15.5 percent of Vermont children have a special health care need.[8]

Families with CSHN experience much higher expenditures for health care, including out-of-pocket expenditures, than other children. In a 2000 study, compared with other children, CSHN had three times higher health care expenditures ($2099 vs. $628). While only 15.6 percent of the children in the study had special health needs, they accounted for 33.6 percent of total health care costs, including dental. Insurance coverage provided families with the best protection against inpatient hospital care expenses and left them most exposed to dental care expenses.[9]

*"Provide and promote family-centered, community-based, coordinated, comprehensive care for CSHN and facilitate the development of community-based systems of service for such children and their families"* is the stated mission of the Vermont Programs for Children with Special Health Needs at the Department of Health. The needs of this very special population must be

[8] Maternal and Child Health Bureau . *Telephone survey of families of CSHN in all 50 states*, 2003.
[9] Newacheck PW, Kim SE. A national profile of health care utilization and expenditures for children with special health care needs. *Arch Pediatr Adolesc Med*. 2005 Jan;159(1):10-17.

addressed in all aspects of implementation of the Vermont State Health Plan. Specific priorities include:

- Ensure that all newborns are screened to identify and treat serious conditions that benefit by pre-symptomatic treatment. This requires routine monitoring of screening rates and quality, training for hospital and community-based screeners; provision of timely clinical follow-up to confirm cases, early entry into effective treatment, and regular reports to providers and the public;.
- Ensure adequate insurance to pay for services. This includes assisting eligible families to apply for Dr. Dynasaur and/or other services, assistance to Medicaid policy-makers to assure that CSHN do not lose/drop Medicaid coverage; inclusion of parents in advising and decision making processes for Medicaid; and advocacy with health care payers on behalf of CSHN for coverage of medically necessary services and for more timely decisions about coverage
- Ensure CSHN's receipt of, not just access to, coordinated, ongoing, comprehensive care within a primary care medical home. This requires the training of primary care providers at the student, residency and practice levels in the care of CSHN; developing and implementing improved CSHN program methods for coordinating and facilitating effective communication among specialty care, primary care, community services, and families; and participation in interagency planning to encourage medical home improvement activities.
- Ensure that services for CSHN are family-centered, so that families partner at all levels and are satisfied with services. Strengthen the voice of families in system review and design, including family participation in needs assessment, data review and service planning.
- Ensure services to support youth transitioning to the adult system of care. This includes encouragement for family practitioners and internists to provide medical homes for young adults with special health needs; engaging specialists in adult fields to identify what they need to provide comprehensive services to young adults with historically "childhood" chronic conditions; and encouraging medical home primary care providers to participate in interagency transition/life care planning for older adolescents with special health care needs.

## *Mental Health*

*Desired outcome:* All Vermonters with mental health needs thrive in healthy communities.

*Action needed:*

- Improve integration of mental health services into primary care, focusing on prevention, screening, early intervention and referral when indicated.
- Fully integrate the treatment of severe and persistent mental illness with the Vermont Blueprint for Health. This integration must include:
  - Informed decision-making systems for individuals and families that explain choices about programs and providers, so that they may fully participate in planning and evaluating treatment and support services in light of their own preferences.
  - Enhanced self-management and peer support services as a further step toward a more recovery-oriented system of mental health care in Vermont.
  - Commitment to and further development of community-based care, supporting the most integrated community settings and least restrictive alternatives for care through a full range of community-based treatment and support options.
- Develop community outreach programs to identify individuals at high risk for mental illness or associated problems and to assist them in obtaining needed services from the most appropriate community resource.
- Review the laws, regulations and practices regarding medical treatment for individuals who may lack capacity to make an informed decision regarding their treatment and recommend change where indicated.
- Develop community-based suicide prevention services based on the National Strategy for Suicide Prevention.

*Background:*

> "*Mental health* is a state of successful performance of mental function, resulting in productive activities, fulfilling relationships with other people, and the ability to adapt to change and to cope with adversity. Mental health is indispensable to personal well-being, family and interpersonal relationships, and contribution to community or society. From early childhood until death, mental health is the springboard of thinking and communication skills, learning, emotional growth, resilience and self-esteem.
>
> "*Mental illness* is the term that refers collectively to diagnosable mental disorders. Mental disorders are health conditions that are characterized by alterations in thinking, mood or behavior (or some combination thereof) associated with distress and/or impaired functioning."
>
> Mental Health: A Report of the Surgeon General [10]

[10] U.S. Department of Health and Human Services (DHHS). *Mental Health: A Report of the Surgeon General* (Rockville, MD: Substance Abuse and Mental Health Services Administration, Center for Mental Health Services,

Mental illness is the product of the interaction of biological, psychological and socio-cultural factors. Causes may include predispositions within one's genetic makeup, environmental stressors that one experiences, and variations in brain chemistry. Mental illness typically has non-medical dimensions that may be described as spiritual, emotional, psychological, social or economic, and the symptoms may be located in relationships and other social contexts, as well as being located within the individual.

As is the case with physical health, mental health and mental illness occupy opposite ends of a continuum, and individuals are more or less healthy or ill at different times. Mental health is essential to overall health;[11] it governs and is governed by other aspects of health and plays an important role in the rate at which patients recover from injuries, operations and physical ailments. Mental illnesses may occur with other conditions, either as a contributing cause or as an effect of conditions such as substance abuse, diabetes, heart disease and physical handicaps.

## Impact of Mental Illness

The overall impact of mental health problems and illness is significant and frequently underestimated. Mental illness ranks first among illnesses that cause disability in this country,[12] and it is devastatingly expensive. Nationally, it accounts for $71 billion annually in direct costs, measured by expenditures on treatments for mental illnesses, and an additional $79 billion in indirect costs, measured by the loss of productivity because of illness, premature death, or incarceration.[13]

It is likely that a significant but unmeasured portion of the population in need of care fails to receive it. At the national level, less than one-third of adults with a diagnosable mental disorder receive mental health services in a given year, and the proportion is even smaller for children.[14]

Based on national studies, it is estimated that in Vermont during any given year as many as one in four adults and one in five children will have a diagnosable mental health condition or mental illness that has a negative effect on well-being and/or ability to function in daily life.[15] These conditions include severe forms of illness such as schizophrenia and major depression; moderately severe conditions such as depression, generalized anxiety, panic, obsessive-compulsive disorder and post-traumatic stress; and less severe conditions such as grief reaction and adjustment disorders. It is estimated that more than 28 percent of Vermonters with mental health disorders also have substance abuse disorders. [16]

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National Institutes of Health, National Institute of Mental Health; 1999. page 4-5. Hwww.surgeongeneral.gov/library/mentalhealth/home.htmlH

[11]The President's New Freedom Commission on Mental Health, *Achieving the Promise: Transforming Mental Health Care in America. Final Report.* DHHS Pub. No. SMA-03-3832. Rockville MD: 2003, pp. 17, 19-26.

[12]World Health Organization. (2001) *The World Health Report 2001—Mental Health: New Understanding, New Hope*. Geneva: World Health Organization, cited in *Achieving the Promise*, p. 3.

[13] *The World Health Report 2001*, p. 3.

[14] DHHS. *Mental Health: A Report.* p. 65.

[15] DHHS. *Mental Health: A Report.* pp. 123-24 and 227-28.

[16]Agency of Human Services. *Co-occurring Substance Abuse and Mental Disorders: AHS Plan for Future Directions.* 2004.

The scope of services for mental health is no different than that of other health services and extends from prevention, through screening, diagnosis, treatment and aftercare. While the treatment systems for mental illness and other illnesses have evolved separately, there is significant overlap with prevention and primary care.

## Prevention

Numerous environmental risk factors for experiencing mental health problems have been identified. They include exposure to violence, abuse, neglect, substance abuse, homelessness, lead poisoning, economic hardship, accidents and injuries, loss of a loved one through death, divorce, or broken relationships, and severe stress or rejection because of discrimination based on race, sexual orientation, religion, or poverty. The more risk factors a child, adolescent, or adult encounters, the greater the risk of mental, emotional, or behavioral problems and the higher the importance of counterbalancing these risks to prevent or limit the problems that could develop.

Helping youth to develop the understanding and master the skills needed to lead healthy lives within their home, school, and community is the basis of prevention and early intervention for nurturing the mental health of young children and adolescents. Internal and external factors that protect children and give them the resiliency needed to overcome difficult circumstances have been identified and are listed in Appendix D.

Prevention of mental problems in youth requires that families and communities work together to so that youth are supported and empowered, know what is expected of them and have opportunity to participate in creative, fulfilling endeavors. Prevention also requires nurturing youth in their areas of learning, values development, social competency and positive self-identity. For youth at risk, the earlier that intervention occurs to reinforce the protective factors in the child, family and community, the better the prognosis.[17] See Chapter: Prevention As a Priority.

***Suicide prevention***

Suicide, the ninth leading cause of death in Vermont, is a serious public health problem among all Vermonters, young and old. There were 1,018 suicides in Vermont in the period 1990-2002, or an average of 85 per year, 82 percent of them among men. The greatest number of suicides occurs among men ages 35 to 44, while the highest rate of suicide is among men 85 years of age or older (Figure 14).[18] The rate of suicide among male teens has increased threefold nationally since the 1960s and is another cause for concern.[19]

Figure 14
**Suicide in Vermont Men 1990-2002**

| Age Group | Total Number | Percent of all Suicides | Rate per 100,000 population |
|---|---|---|---|
| **10-14** | 7 | 0.8 | 2.5 |
| **15-19** | 46 | 5.4 | 15.6 |
| **20-24** | 83 | 9.9 | 30.7 |
| **25-34** | 154 | 12.8 | 28.8 |
| **35-44** | 159 | 13.3 | 25.4 |
| **45-54** | 137 | 11.4 | 26.9 |
| **55-64** | 82 | 6.8 | 24.5 |
| **65-74** | 67 | 5.6 | 28.9 |
| **75-84** | 77 | 6.5 | 62.3 |
| **84+** | 28 | 2.3 | 89.6 |

[17] DHHS. *Mental Health: A Report.* pp. 132-33.
[18] Vermont Department of Health. Division of Health Surveillance. *Unpublished.* 2004.

In 2002, there were 272 emergency department visits associated with suicide attempts in Vermont, and 91 fatalities (76 male and 15 female). Females in Vermont are twice as likely as males to attempt suicide, but males are nearly five times as likely to die in the attempt. Firearms are the most common method for suicide fatalities, followed by poisoning and suffocation. Vermont has the highest firearm-related suicide death rate of the six New England states.

Over 90 percent of children and adolescents who commit suicide have a mental disorder, such as depression, possibly complicated by co-occurring substance abuse.[20] Thus it is important that our response to this problem not only involve targeted suicide-prevention efforts, but also address behavioral and emotional problems. Prevention programs that have documented success include early identification of people at imminent risk; assessment of individual risk and protective factors (individual, family, community and environment); and early identification and intervention for depression and substance abuse. Identifying individuals at risk for suicide requires a community response, in addition to better training for health professionals and increased awareness on the part of police and correctional personnel, clergy, teachers and school staff, and other community members who interact with large numbers of people. Suicidal behavior can be reduced and problems such as aggression, substance abuse, poor school performance and absence, depression, and anxiety can be ameliorated as well.[21]

## Primary Care Services

The role of the primary health care provider includes screening for a wide range of health problems, including mental problems, and acting to correct, control or reduce the impact of those problems. Full integration of mental health services into primary care requires that providers have reliable screening tools to assess mental health problems and that evidence-based standards be used to determine the level of care required and to provide that care or refer appropriately. Training and information systems must be in place to support the provider in this role.

Assessment and diagnosis of late-life mental disorders are especially challenging by virtue of several distinctive characteristics of older adults. First, the clinical presentation of older adults with mental disorders may be different from that of other adults, making detection of treatable illness more difficult. Primary care providers carry much of the burden for diagnosis of mental disorders in older adults; however the rates at which they recognize and properly identify disorders often are low. Cognitive decline, both normal and pathological, can be a barrier to effective identification and assessment of mental illness in late life.

The vast majority of people with mental problems, particularly those with short-term or less severe problems, are cared for exclusively by their primary care provider. Many are likely to go without care altogether. The Vermont Blueprint for Health, with its collaborative model of care, reliance on evidence-based standards and use of clinical information systems to monitor progress

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[19]Institute of Medicine, *Reducing Suicide: A National Imperative.* Washington (DC): National Academies Press; 2002.
[20] DHHS. *Mental Health: A Report.,* pp. 154-55.
[21] National Strategy for Suicide Prevention, U.S. Department of Health and Human Services. Hwww.mentalhealth.samhsa.gov/suicideprevention/H

and improve systems for the delivery of care, offers an opportunity to improve the quality of mental health services for patients in the primary care setting.

## Treatment Services

Mental Health treatment services are those that are delivered by providers specifically trained to treat the complex needs of people with mental illness. A combination of private and public entities makes up the Vermont care system for mental illness and includes:

- Vermont State Hospital
- 10 community mental health agencies designated by the Commissioner of Health as the local lead agency to provide comprehensive services to adults with severe mental illness and children and youth with severe emotional disturbances
- 5 hospitals with psychiatric inpatient services that have been designated by the Commissioner of Health to provide treatment to individuals involuntarily committed to the Commissioner's care and custody.
- Psychiatrists, psychologists, social workers and other providers in private practice.

Use of the Chronic Care Model (CCM) as a tool for improving care for individuals with more severe exacerbations of mental illness has been piloted by the Office of Vermont Health Access, community mental health agencies and primary care providers over the past several years with promising results. The Vermont Medical Home Project has addressed the care of individuals with severe mental health and other disabilities. The Vermont Community Depression Project has addressed improved coordination between the community mental health agencies and primary care providers. See Chapter: Chronic Conditions.

Expansion of these projects to other settings and diagnoses and increasing participation by primary care providers is now needed. The Vermont Blueprint for Health, which is based on the CCM, provides an essential organizing structure for managing the care of people with long-term, complicated health problems. The goal of enhancing clinical and functional outcomes is predicated on planned, proactive care by the provider and an activated, informed consumer who work together to set and accomplish treatment goals.

***Adult Services***

Two population groups are the primary recipients of specialty mental health services. The largest includes adults with emotional and behavioral problems that disrupt their lives and are sometimes temporarily disabling. Many of them have attempted suicide within the past year or are afraid that they will do so. Alcohol and drug abuse are common. They frequently have histories of psychological trauma, with lingering impairments to their ability to cope with everyday living. Common difficulties may include maintaining a household, managing money, getting around the community, and taking prescribed medications. Marital and family difficulties are strikingly common, and so is poverty. Vermont Adult Outpatient Programs served approximately 7,000 individuals and families in fiscal year 2004.

The second group includes adults with diagnoses of major mental illnesses such as schizophrenia, bipolar disorder, major depression, and serious disorder of thought or mood.

These individuals often have a long-term disability (as evidenced by social isolation or poor social functioning, a poor work history, or qualification for federal Supplemental Security Income) and are likely to have had a recent history of intensive and ongoing mental-health treatment (multiple psychiatric hospitalizations, for example, or six consecutive months of outpatient treatment). Vermont Community and Treatment Services (CRT) served 3200 adults in fiscal year 2004.

Current Vermont laws are inconsistent regarding medical treatment for individuals who may lack competence to make informed treatment decisions, and the criteria to determine competence. This situation merits review as it has implications for the right to due process, the right to appropriate treatment, and rights regarding advance directives for health care.

***Child, Adolescent and Family Services.***
Treating mental disorders in children and adolescents requires a complex analysis of development and of discrete disorders. Services for youth need to be organized around the concept of resiliency, with an emphasis on prevention and early intervention to strengthen protective factors and ameliorate risk factors. In defining child and adolescent mental health and mental disorders, it is critical to avoid thinking that children or even adolescents are "little adults." Even more than adults, children are impacted by their social environment (family, peers, physical and cultural surroundings). Equally profound is the ongoing development of the body, and especially the brain.

Human development is marked by periods of transition and reorganization; change, especially rapid change, is usually stressful. Nevertheless, at some level of intensity, symptoms and behaviors can cause great distress for the child, the family, and others. At these points, it is helpful to consider serious deviations from expected cognitive, social, and emotional development as mental disorders. Given the process of development, it is not surprising that these disorders in some youth may wax and wane. Some youth improve as development continues, perhaps as a result of healthy influences. Other youth, some formerly only "at risk," may develop full-blown forms of disorder as severe and devastating as the analogous conditions that affect adults. And because of the growth potential in each child and adolescent, it is especially important that supports and treatment services be available in the home, school, and community to maximize their development.

Vermont's mental-health system of care offers five types of core capacity services available regionally through designated agencies:

- Immediate response: intensive, and time-limited (usually 2-3 days) interventions for families in crisis.
- Outreach treatment: clinical services available in the home, school, and general community settings.
- Clinic-based treatment: assessment; group, individual, and family therapies; service planning and coordination; and medication services.
- Support: to help reduce family stress and provide parents and caregivers with additional guidance, support and skills to nurture a difficult-to-care-for child.

- Prevention, screening, referral, and community consultation: community agreements to promote psychological health and resilience for families and youth.

These five core capacity services meet the needs of the majority of Vermont's youth. For a small percentage of youth, more intensive services are needed. Vermont is a recognized national leader in the development of community-based intensive services within a system of care. These services include intensive services "wrapped around" a child in his/her home, school, and community. A wraparound plan is the generic term for an intensive, individualized program of care, usually including support and supervision 24 hours a day. Each program is created for one person, based on that person's unique needs and strengths. Children's Services in Vermont served more than ten thousand children and adolescents and their families in Fiscal Year 2004.

***Emergency Services***

Vermont's public mental-health system offers Emergency Services for anyone experiencing a mental-health crisis. Emergency Services are available from designated agencies all around the state twenty-four hours a day, seven days a week. In addition, communities or organizations trying to cope with natural disasters or with an unusual, traumatic event, such as a suicide that shakes a school community, also rely on Emergency Services, not only for collective help, but also for help to individuals in managing their reactions to such traumatic events. Vermont's Emergency Services programs provided, at a minimum, telephone support, assessment and referral to approximately seven thousand people of all ages in Fiscal Year 2004. About 25 percent of the people who receive Emergency Services have no insurance, and another 25 percent have private insurance that does not always pay for services for a mental-health crisis. More than 75 percent of Emergency Services costs are paid by public funds.

## Self-Care and Community Services

Increased participation by consumers and families in their own treatment plans, in the administration of services, and in the development of policy has precipitated a change in culture of mental health services that now emphasizes recovery, resilience, and independence. These advances and others offer tremendous opportunities for reform.

In addition to those who receive care and counseling from licensed, certified or registered Vermont mental health specialists in the public and private sectors, many deal with their illnesses by seeking help from support groups, from clergy, and from other alternative sources or methods. Many others receive their treatment exclusively from primary care physicians.

The concept of recovery is gaining prominence in the field of adult mental health as an achievable goal for both individuals and systems.[22] Recovery has many definitions. For one expert, it means "a process of learning to approach each day's challenges, overcome our disabilities, learn skills, live independently and contribute to society."[23] For others, recovery may be "the ability to live a fulfilling and productive life despite a disability." Or it may imply

[22]*NASMHPD/NTAC* (National Association of State Mental Health Program Directors/National Technical Assistance Center) *e-Report on Recovery* Home Page, Hwww.nasmhpd.org/spec_e-report_fall04intro.cfmH *Achieving the* Promise, p. 4.
[23]Ruth Ralph, quoted by the *NASMHPD/NTAC e-Report*.

"the reduction or complete remission of symptoms. . . Having hope plays an integral role in an individual's recovery."[24] Stressing independence, peer support, and community-based services, the recovery concept originated among adults with mental illness, many of whom had been institutionalized and had found peer support to be an important component of their own recovery. They challenged the prevailing model of care, with its more modest goals of preparing individuals to work in closed workshops and live under supervision, an approach that carried with it the implication of life long illness, increasing disability, and ongoing need for treatment, frequently in an institution.

Recovery also reflects attitudes and principles of design for the mental health care delivery system. It complements, but does not replace, other mental-health supports and services that help people live independently in their communities.

## Quality of Care

For adults with severe mental illness, the Vermont Department of Health and community providers emphasize evidence-based practices, promising emerging practices, and values-based practices. Evidence-based practices are those for which consistent scientific evidence shows that they improve client outcomes. Vermont has implemented five evidence-based practices: Assertive Community Treatment, Family Psycho education, Illness Management and Recovery, Integrated Treatment for Dual Diagnoses of Mental Illness and Substance Abuse, and Supported Employment.

Promising emerging practices are those for which scientific evidence is accumulating and is appearing in the literature in the field. The public system has an additional duty to pursue implementation of promising emerging practices by identifying gaps in current services and practice approaches that fail to address the needs of clients and their families, searching for practices that show promise in addressing those needs, and then learning about the practices and implementing them. Dialectical Behavioral Therapy for persons with borderline personality disorders is very close to meeting the evidence-based standard and has been adopted in nine of Vermont's 10 mental-health catchment areas. The Health Department is exploring practices that are particularly helpful to people who have experienced trauma in their lives.

Values-based practices are practices that promote recovery, empowerment, and community integration; they lack rigorous formal scientific evidence established through experimental trials, and yet the evidence we have and the values we share tell us that they work for clients. These practices are often peer-based or peer-operated. Examples of values-based practices in Vermont are Recovery Education, Family-to-Family Education, and Family-Provider Education.

*Note: The 2004 Legislature called for studies of several aspects of public mental health care. Concurrent with the development of the Vermont State Health Plan, planning was initiated for the replacement or distribution of the functions and services provided by the Vermont State Hospital, a system evaluation was made of the community mental health centers, and a comprehensive mental health services plan was developed by the Department of Corrections. These plans are incorporated here by reference (See Appendix B).*

[24] *NASMHPD/NTAC e-Report on Recovery Achieving the Promise*, p. 5.

## *Oral Health*

*Outcome desired*: Vermonters have access to oral health services that are fully integrated with health care, public health and community services.

*Action needed:*

- Accept the Vermont Oral Health Plan and ensure implementation of the recommended strategies by providers, individuals and communities. See Appendix B.
- Recognize that the Oral Health Plan is a significant step in what must be a concerted and ongoing effort to forestall a decline in access to dental services.
- Craft new approaches and solutions to the prevention of oral disease and problems of access to dental care through a commitment by consumers and medical, dental and public health providers to work together.

*Background:*
The fragility of the dental health system in Vermont is being recognized within the dental profession itself, within the health care sector and among policy makers in public health. According to the 2003 Vermont Survey of Dentists, conducted biannually by the Department of Health, the number of dentists increased by 20 between 1999 and 2003; however, the number of full-time equivalent dentists decreased from 290 to 281 during that same time. This is reflective of the aging of the Vermont dental workforce. More than one-third of the 367 dentists planned to retire within 10 years. The 2003 dentist survey reveals a wide ranging dentist-population ratio across the state, from 10 per 100,000 population to 47 per 100,000.

Exacerbating the problem is that Vermont has no in-state dental school and, as a percent of the population, sends fewer of its young people to dental school than any other state. Between 1986 and 1993, the number of dental schools in the United States decreased by six. Dental school graduates declined by approximately 37 percent from the early 1980s to 1990, but rebounded between 1993 and 2002, with a 15 percent increase from 3,778 to 4,349. In 2002, the number of graduates remained unchanged.[25]

Most Vermont dental practices follow the model that primary care once followed: independent practices consisting of one or two individual providers who own the "business." Dental care has traditionally been a separate service, with care and treatment of dental conditions being delivered separately from other aspects of health care. However, there is an increasing understanding among medical and dental providers that oral health is an integral part of personal health, affecting and being affected by a range of medical conditions.

The fragility of the dental system can be a challenge for people who use Medicaid, for those without means to pay for dental services, and for Vermonters in rural communities with an inadequate number of local dentists. Hospitals, health centers and the public school system have increasingly been called upon to address these gaps in service.

[25] Vermont Dental Society. 2005. *Unpublished.*

Vermont Oral Health Plan addresses four major areas:

- Public health infrastructure, to maintain an oral health surveillance system, to build partnerships and integration between the public and private sectors, to promote education, and to implement services that increase effectiveness, accessibility, and the quality of oral health services.
- Prevention and health promotion, to increase understanding of oral health as integral to overall health, to promote the establishment of dental home for each individual, and to promote and to provide for fluoridation, dental sealant use and the early detection of oral cancer.
- Workforce development, to enhance efforts to recruit dentists, to explore the use of dental and non-dental providers, to provide continuing education opportunities, and to provide for the systematic collection of dental workforce data.
- Financing and delivery systems, to promote collaboration among government financed dental clinics and private practice dentists, to develop an economic model to understand the impact of reimbursement on access, and to support a community-based and coordinated social support system to increase access.

The Vermont Oral Health Plan outlines important strategies that, if followed, will help to ease the problems of dental access over the next several years. A declining number of dentists serving an increasing population, including a higher proportion of older Vermonters with greater dental needs, warrants careful monitoring of the implementation and evaluation of the progress made under this plan (Figure 1). It is likely that Vermont will continue to face challenges in maintaining acceptable levels of access and may, in time, need to consider new models of care to meet the needs of the state's population. Models that have been tried in other jurisdictions include: collaborative dental centers, new workforce strategies to improve the efficiency and effectiveness of dental health professionals, integration of selected dental services into primary medical care, and additional incentives to enter dental practice.

The new system for health advocated in the Vermont State Health Plan calls for better integration of oral health services and provides the framework to accomplish this goal. In addition to changes in the health care sector and provider practice components, self management is critical, as are community services such as fluoridated water, promoting healthy food choices and creating a societal norm of good oral hygiene and appropriate use of dental services.

## *Substance Abuse*

*Outcome desired*: Comprehensive, coordinated and effective drug and alcohol prevention and care services, offered in community-based settings will lead to reduced substance abuse and related problems.

*Action needed:*

- Integrate substance abuse services into primary care, with particular attention to pregnant women, focusing on prevention, screening, early intervention and referral when indicated.
- Develop, support and maintain primary prevention coalitions, programs and activities, including community coalitions now funded through the Department of Health's New Directions and Tobacco-free Community Grant programs.
- Develop and maintain a full continuum of geographically accessible treatment services including outpatient, inpatient and pharmacological treatment units. Expand the capacity for pharmacological treatment capacity for opioid addiction as follows:
  - Mobile or stationary methadone clinics
  - Office-based buprenorphine treatment.
- Increase aftercare and recovery services, including treatment modalities that include a strong focus on recovery management and relapse prevention.
- Continue to increase locally provided outpatient treatment and case management services that are coordinated and integrated with other community services (e.g. vocational counseling, criminal justice, and primary medical care) and that include safe and sober housing for people transitioning back from residential care and from incarceration.

*Background:*

### Impact of Substance Abuse

Vermont has a serious substance abuse problem. Although most Vermonters have seen evidence of a heroin problem in the state only through media reports of deaths and increased crime, the problem of increasing prevalence and the associated damage have been evident in the state for some time. In 1995, a survey of adult Vermonters found that almost 10 percent of Vermonters needed substance abuse treatment, most for alcohol abuse. The same survey found that heavy alcohol users were five times as likely to be arrested as non drinkers or moderate drinkers. At that time, 63 percent of Vermonters felt that the severity of Vermont's drug problem was greater than it had been five years earlier.[26]

Research has shown that young people who drink alcohol before the age of 13 are almost five times more likely to develop a future diagnosis of alcohol dependence than those who begin

[26] Bray, R. M., Camlin, C. S., Kroutil, L. A., Rounds-Bryant, J. L., Bonito, AJ. & Apao. W. *Use of alcohol and illicit drugs and need for treatment among the Vermont household population: 1995*. August, 1997.

drinking at age 20 or later.[27] The 2003 Vermont Youth Risk Behavior Survey of students in grades 8 - 12 found that 25 percent reported having had their first drink before the age of 13.[28] The 2002 National Survey on Drug Use and Health (NSDUH) estimated that 11 percent of Vermonters aged 12 or older had used an illicit drug during the previous month. Among youth aged 12 - 17, the proportion was 17 percent; and among young adult Vermonters, aged 18 - 25, 30 percent reported past-month illicit drug use.[29]

The NSDUH found that 25 percent of Vermonters aged 12 or older reported binge drinking during, consumption of five or more drinks on the same occasion, in the past month. As with illicit drug use, this behavior is prevalent in adolescents and young adults. Almost 14 percent of children aged 12 - 17 and more than half young adults, aged 18 - 25, reported past-month binge drinking of alcohol. Among adults older than 25, more than 22 percent reported the same behavior.

With these indications of substance abuse prevalence, it is not surprising that many Vermonters are in need of treatment. The NSDUH found that close to 10 percent of Vermonters aged 12 and older needed treatment. As with the abuse indicators above, this need was higher among children aged 12 - 17 (more than 12 percent) and highest among adults aged 18 - 25 (over 23 percent). Based on the NSDUH estimates, more than 36,000 Vermonters who needed treatment for alcohol problems in 2002 did not receive any treatment, and more than 15,000 who needed treatment for drug problems did not get it.

Although many who need treatment are not treated, more people are being treated each year in the publicly funded treatment system. In 1998, about 5,500 people received such treatment. By 2003, the annual number had grown to 7,800, reflecting an increase of nearly 43 percent over five years; 6,570 people received outpatient treatment services, 779 received intensive outpatient services, and 1,650 received residential treatment. Several people received more than one type of service. Most adults seek treatment for alcohol-related problems, but most adolescents seek treatment due to the effects of marijuana.[30]

In FY1998, fewer than 200 people in Vermont were admitted for primary treatment of heroin/opioid problems. In FY2003, over 1,000 (about 13 percent of all patients) received treatment primarily for heroin/opioid problems.[31]

In 1998, there was no pharmacological treatment for opioid addiction available in the state. By 2004, 140 people were being treated at the Chittenden Center, a methadone clinic in Burlington. A mobile methadone program, expected to open in the spring of 2005, will serve approximately 150 people in the Northeast Kingdom. Many other Vermonters are receiving buprenorphine

[27] Grant, B. F., Dawson, D. A. National Institute on Alcohol Abuse and Alcoholism. Age at onset of alcohol use and its association with DSM-IV alcohol abuse and dependence: Results from the National Longitudinal Alcohol Epidemiologic Survey. *Journal of Substance Abuse. 1997;* 103-110, 1997.
[28] VDH. *Youth Risk Behavior Survey*. 2003
[29] Wright, D. (2004). State Estimates of Substance Use from the 2002 National Survey on Drug Use and Health (DHHS Publication No. SMA 04–3907, NSDUH Series H-23). Rockville, MD: Substance Abuse and Mental Health Services Administration, Office of Applied Studies.
[30] Vermont Department of Health , Division of Alcohol and Drug Abuse Programs. *Unpublished*.
[31] Vermont Department of Health , Division of Alcohol and Drug Abuse Programs. *Unpublished*.

from their physicians, and a medication assisted therapy program in central Vermont inducts and stabilizes patients for referral back to their physicians for this treatment. This program is providing needed assessments and supports to doctors in this important effort. Although much has been achieved over the past three years, more pharmacological capacity is needed.

## Prevention and Community-Based Services

Vermont's Drug Education, Treatment, Enforcement & Rehabilitation (DETER) program, which is incorporated here as part of the Vermont State Health Plan, offers a comprehensive strategy that focuses on and finances a wide variety of prevention, treatment, and law enforcement efforts. It builds upon the base continuum of services for substance abuse issues: prevention, intervention, treatment and recovery services. It provides funding for student assistance professionals who provide prevention, education, screening and intervention for students in the school environment. One of the program's goals is to have a student assistance professional in every middle and high school in Vermont.

Strategies for substance abuse services include enhancing prevention and community-based services, increasing access to and integration of services, and ensuring quality and accountability. Substance abuse prevention efforts in Vermont recognize

- that there are multiple determinants of good health
- that environmental supports and consistent messages contribute to healthy and informed choices
- that multidisciplinary partnerships and coalitions are essential to improving health and that community prevention services and activities must be widely available and accessible in order to support healthy behaviors, to reduce risk factors and to increase the quality of life and health for Vermonters

Primary drug and alcohol prevention focuses on comprehensive planning at state and local levels to bring together community stakeholders, schools, and families to increase assets and decrease risk factors, especially among youth. Often linked with other health promotion activities, drug and alcohol prevention in the community should provide clear, consistent messages, combined with substance-free activities and hands-on skill building to assure that youth and parents lessen risks and develop healthier lives. At the personal level, the risk of alcohol dependence drops each year that drinking is postponed,[32] which means that preventing the early use of substances among youth is critically important to youth development and the avoidance of future problems.

## Access to and Integration of Services

There are multiple physical, behavioral, social, economic, genetic and environmental influences that contribute to addiction. Many of these same influences can provide opportunities to prevent or limit progression of abusive alcohol and drug behaviors. Increasing healthy behaviors and reducing the damage of alcohol and drugs is a shared responsibility that must involve individuals, communities, health care providers, and public health and other social services.

[32] Grant, B. F., Dawson, D. A. National Institute on Alcohol Abuse and Alcoholism. Age at onset of alcohol use and its association with DSM-IV alcohol abuse and dependence: Results from the National Longitudinal Alcohol Epidemiologic Survey. *Journal of Substance Abuse*. 1997; 9:103-110.

Increased access to primary care physicians and widespread availability of community services that support early substance abuse screening and identification, aftercare and recovery maintenance, will help ensure that people can get intervention or treatment when they need it, and that the positive outcomes of these services are maintained over the long term. Coordinated, effective care can minimize or eliminate the health complications, injuries and social impacts of substance abuse, improving the quality and length of individual lives.

Most people who need treatment will not seek it. Many are unaware that they need it. The Vermont Department of Health's 1995 Vermont Household Telephone Survey found that about 95 percent of the Vermont adults who needed treatment but did not receive assistance indicated that they did not feel they needed treatment.

Research indicates that, as with many health conditions, drug and alcohol abuse and dependence is often progressive. Early detection and treatment can reduce the damage and need for more expensive and intensive treatment. Increasingly, health care and human service professionals are becoming more focused on screening and early intervention to help identify people at risk and to get them connected to the services they need. This is apparent in the development of drug courts in Vermont, the placing of student assistance professionals in the schools, and the implementation of screening practices in other areas where people access human services and health care.

Nationally, the screening for substance abuse problems in the traditional health care environment has not been widespread.[33] A 2000 national survey found that 94 percent of primary care physicians (excluding pediatricians) failed to include a substance abuse diagnosis when presented with early symptoms of abuse in an adult patient.[34] Only about 20 percent of physicians felt "very prepared" to identify alcoholism, less than 17 percent felt "very prepared" to identify illegal drug use, and only about 30 percent thought they were "very prepared" to spot prescription drug abuse. The average patient was abusing alcohol, pills and/or illegal drugs for 10 years before seeking treatment.

With respect to relapse rates and patient compliance, research has found that the effectiveness of treatment for alcohol and drug abuse is similar to the treatment effectiveness of other chronic diseases such as diabetes, hypertension, and asthma.[35]

Participation of the health care and community sectors is necessary to ensure that individuals access appropriate treatment and that their care is coordinated with the delivery of other services. Research also has shown the importance of access to and involvement in recovery maintenance activities in maintaining abstinence and improvements in other areas.[36]

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[33] The National Center on Addiction and Substance Abuse at Columbia University. *Missed Opportunity: National Survey of Primary Care Physicians and Patients on Substance Abuse*. Survey Research Laboratory, University of Illinois at Chicago, April, 2000.
[34] The National Center. *Missed Opportunity*.
[35] Physician Leadership on National Drug Policy, March 1998 Research Report. Hhttp://caas.caas.biomed.brown.edu/plndp/Newsroom/Press_Releases/PR2/pr2.htmlH
[36] Harrison, P. A., Asche, S. E. (2000, October). The challenges and benefits of chemical dependency treatment: Results from Minnesota's treatment outcomes monitoring system 1993-1999. St. Paul, MN: Minnesota Department

## Accountability and Quality Assurance

Treating an individual holistically and understanding the role of substance abuse in diminishing health requires a coordinated and shared vision for care that recognizes the complexity of drug and alcohol abuse. It requires prevention, screening, and early identification and intervention to recognize and address problems as early as possible.

The substance abuse problem in Vermont is visible and pronounced. Most Vermonters are aware that drug and alcohol problems affect health, worksites, families and schools. What can be less apparent are the solutions. There is a strong body of research that demonstrates the effectiveness of treatment and its positive impacts on crime, health care utilization, and employment. There also is substantial research on what kinds of activities and programs effectively prevent substance use among youth.

Two large, well-known studies demonstrate the positive impacts of treatment. According to one,[37] substance abuse treatment programs are remarkably cost-effective: every $1 spent on treatment saves the public up to $7. This study found that treatment had an impact on costs by reducing crime and the burden of providing care for avoidable illness and injury. The level of crime was found to decline by two thirds following treatment. Emergency room admissions and hospitalizations were reduced by one third. The benefits of treatment were found to outweigh the costs by ratios that ranged from 4:1 to 12:1, depending on the type of treatment. Research results have continued to demonstrate that substance abuse treatment works, reduces costs, and improves lives, allowing individuals to be more productive, independent and self-sufficient.

The second study[38] assessed the impact of drug and alcohol treatment over a five-year period on 5,388 clients treated in public substance abuse treatment programs. Comparisons were made between the year prior to treatment and the year following to determine the impact of treatment in a variety of areas including alcohol and drug use, criminal behaviors, employment, housing, and physical and mental health. Results demonstrated significant improvement in relapse rates, economic status, and physical and mental health, as well as significant decreases in criminal behavior.

In Vermont, the value of treatment and prevention services has been shown by efforts such as the New Directions Project, which demonstrated statistically significant decreases in youth substance use in areas receiving project services. In the past several years, there also is more evidence for the value of particular practices and programs. Training, education and skill development for substance abuse professionals should be informed by, and focused on, this evidence.

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of Human Services, Performance Measurement & Quality Improvement, Health Care Research and Evaluation Division.

[37] Gerstein, D.R.; Johnson, R.A.; Harwood, H.J.; Fountain, D.; Suter, N.; Malloy, K. Evaluating recovery services: The California Drug and Alcohol Treatment Assessment (CALDATA). General Report and Executive Summary. Sacramento, CA: State of California, Health and Welfare Agency, 1994. 95 p. (124575)

[38] U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Substance Abuse Treatment, The National Treatment Improvement Evaluation Study. Washington, D.C.: (February, 1997). Hhttp://www.samhsa.gov/centers/csat/csat.htmlH

In addition to assuring that professionals are trained to deliver state-of-the art services, the delivery of drug and alcohol treatment and prevention services must be monitored, evaluated and reported to the public in order to assure the highest performance and cost effectiveness possible. The federal Substance Abuse and Mental Health Services Administration now requires performance measurement reporting on funds provided to states. Collaborations are underway between the Department of Health and treatment service providers to improve accountability at the community level.

# Vermont State Health Plan
# 2005

## Part 6: Data Summary and Appendices

## *Population Trends*

At the time of the 2000 Census, the Vermont population was 608,827. Of that number, 96.8 percent was white. Among the non-white population, 37.4 percent was of mixed race (reporting two or more), 26.6 percent Asian, 15.6 percent black, 12.3 percent American Indian or Alaskan Native, and 8.1 percent "other." One percent reported its ethnicity as Hispanic or Latino. The non-white population in Vermont increased from 1.2 percent in 1990 to 3.2 percent in 2000. Data showed 35.8 percent of the non-white population and 28.4 percent of the Hispanic or Latino population resided in Chittenden County. Twenty-five percent of the American Indian or Alaskan native population resided in Franklin County.

Figure D-1
**VT Population Distribution by Age**

| Age | 2000 Population | 2020 Projection |
|---|---|---|
| **Under 20** | 27% | 22% |
| **20-44** | 35% | 30% |
| **45-64** | 25% | 27% |
| **65 and over** | 13% | 21% |

Population trends have been projected up to the year 2020.[1] Studies predict an increase in total population of about one half a percent per year, or a total increase over the 20-year period of 9.4 percent, to 666,041.

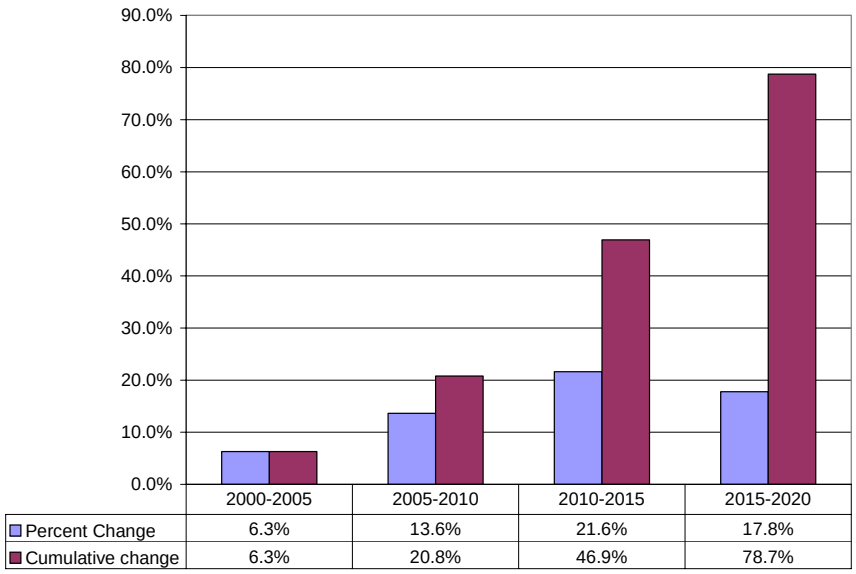
The make-up of the population will change considerably during that time, with 35,000 fewer people under the age of 45, 31,000 more between the ages of 45 and 64, and an increase of 61,000 in the number of those over the age of 65. By 2020, 21 percent of the Vermont population is projected to be over the age of 65, compared to 13 percent in 2000. (Figure D-1)

This increase in the proportion of the population that is 65 and older will have a significant impact on the need for health care services. In 2003, 88 percent of Vermonters (approximately 68,000 individuals) over the age of 65 indicated that they had one or more chronic conditions. Even if this proportion holds steady at 88 percent (an unlikely scenario given increases in obesity and little change in tobacco or physical activity measures), by 2020 nearly 122,000 Vermonters over the age of 65 will have one or more chronic diseases.

The proportion of people over age 65 is projected to increase in each five-year period until 2015, when it will decrease slightly. Still, there will be 78 percent more people over age 65 in 2020 than there were in 2000. (Figure DS-2) The number of people age 85 and over will also increase, from about 10,000 in 2000 to nearly 15,200 in 2020.

[1] Rayer, S. *Population Projections for Vermont, 2000-2020*. Massachusetts Institute for Social and Economic Research, 128 Thompson Hall, University of Massachusetts. Amherst, MA 01003.

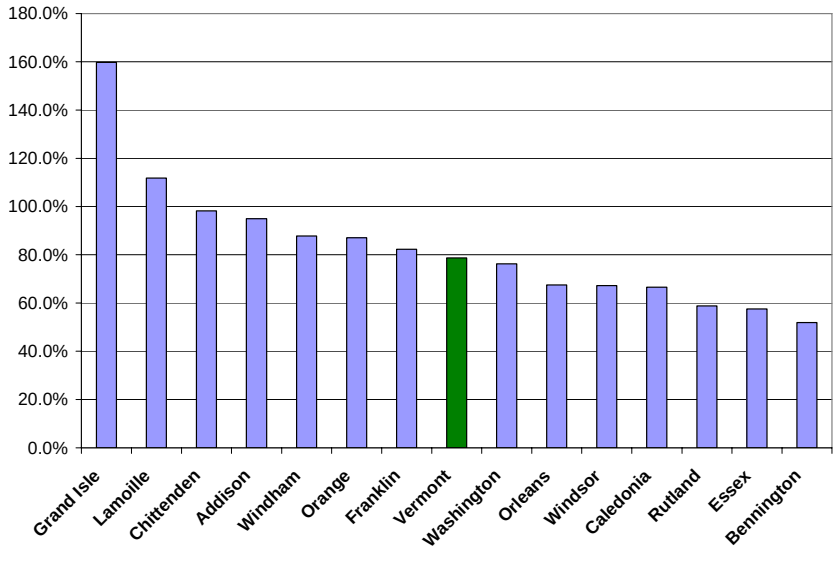
Figure D-2
**Predicted Population Change**
**Vermonters 65 and older 2000-2020**




| | 2000-2005 | 2005-2010 | 2010-2015 | 2015-2020 |
|---|---|---|---|---|
| Percent Change | 6.3% | 13.6% | 21.6% | 17.8% |
| Cumulative change | 6.3% | 20.8% | 46.9% | 78.7% |

The projected increase in the number of people over age 65 varies considerably by county, from an anticipated increase of nearly 160 percent in Grand Isle County to about 52 percent in Bennington County (Figure D-3). While this change will significantly increase the need for health care services throughout the state, the impact will be greatest in areas serving the residents of Grand Isle, Lamoille, Chittenden, and Addison counties. See Appendix F for detailed tables.

Figure D-3
**Vermonters over age 65**
**Projected Population Increase by County 2000-2020**



## *Health Status*

The following sections address the extent to which Vermont has achieved the objectives set out in Healthy Vermonters 2010[2]. This document provides markers by which the state's health status and progress may be measured. These data provide some guidance in determining how health care services might be redistributed.

### Access to Care

Healthy Vermonters 2010 includes several measures indicative of access to health services.

- The proportion of adults ages 18 - 64 with health insurance ranges from 81.6 percent in the Bennington area to 89.9 percent in the Burlington area.[3] The Healthy Vermonters 2010 objective is 100 percent.
- In three regions (Burlington, Bennington and White River Junction), the objective that 90 percent of women receive prenatal care in the first trimester is met.[4]
- The proportion of adults who saw a dentist in the past year is significantly worse than the objective of 83 percent, in all counties except Grand Isle.[5]

### Health Behaviors

Measures of behavior include alcohol and tobacco use and overweight status.[6]

- All regions of Vermont failed to meet the Health Vermonters 2010 target objectives for binge drinking and smoking among adults.
- All regions of Vermont failed to meet Healthy Vermonters 2010 target objectives for binge drinking among youth.
- Only the Burlington and Middlebury areas meet the Healthy Vermonters 2010 objective of less than 16 percent for youth cigarette use in the past 30 days.
- The prevalence of overweight and obesity is higher than the objective in all regions of the state.

### Preventive Health Services

- Vermont data are available on five measures of preventive health services needed by adults.[7]
- In all regions, the Healthy Vermonters 2010 objective for mammography screening for women age 40 or greater was met.

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[2] *Healthy Vermonters 2010*
[3] Vermont Department of Health. *Act 53, Community Needs Assessment Data by Hospital Region*. 2004.
[4] VDH. *Act 53, Community Needs Assessment Data*.
[5] VDH. Health Status Report '02. http://www.healthyvermonters.info/admin/pubs/healthstatus02/health2002.pdf
[6] VDH. *Act 53, Community Needs Assessment Data*.
[7] VDH. *Act 53, Community Needs Assessment Data*.

- No region met the target objectives for influenza or pneumoccocal immunization.
- Colorectal screening is somewhat more variable. There are two objectives, one related to the proportion of people over age 50 having had a sigmoidoscopy or colonoscopy, and the other the proportion ever having had a stool blood test. The Burlington and Bennington regions meet both objectives; Barre, Rutland, St. Johnsbury and Springfield regions meet neither; and the other areas meet one of the two objectives.

## Mortality

While Vermont mortality data show somewhat more variability by county than is shown in the access, behavior or the preventive services sections above, these differences by themselves provide little guidance as to how services might be redistributed. In all counties, the death rate from diabetes-related causes is significantly higher than the Healthy Vermonters 2010 objective. Figure D-4 identifies the counties with death rates above the objective for several conditions. [8]

Figure D-4
**Death Rates worse than the Healthy Vermonters 2010 Objectives – 2002**

| County | Colorectal Cancer | Lung Cancer | Diabetes | Heart Disease | Stroke | COPD* | Suicide |
|---|---|---|---|---|---|---|---|
| **Addison** | ○ | | ♦ | | ○ | ♦ | ○ |
| **Bennington** | ♦ | ○ | ♦ | | ♦ | ♦ | ♦ |
| **Caledonia** | ○ | | ♦ | ○ | ○ | ♦ | ♦ |
| **Chittenden** | ♦ | ♦ | ♦ | ♦ | ○ | ♦ | ♦ |
| **Essex** | ○ | ♦ | ♦ | ♦ | | ♦ | ♦ |
| **Franklin** | ♦ | ♦ | ♦ | ♦ | ○ | ♦ | ♦ |
| **Grand Isle** | ○ | ○ | ♦ | ○ | ○ | ○ | |
| **Lamoille** | ♦ | ○ | ♦ | ♦ | | ♦ | ♦ |
| **Orange** | ♦ | ○ | ♦ | ♦ | ○ | ♦ | ♦ |
| **Orleans** | ♦ | ○ | ♦ | ♦ | ○ | ♦ | ♦ |
| **Rutland** | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ |
| **Washington** | ♦ | ♦ | ♦ | | ♦ | ♦ | ♦ |
| **Windham** | ♦ | ♦ | ♦ | ○ | ○ | ♦ | ♦ |
| **Windsor** | ♦ | ○ | ♦ | | ♦ | ♦ | ♦ |

* Chronic Obstructive Pulmonary (Lung) disease
Key: ♦ *significantly* worse than the objective
○ worse than the objective

[8] VDH. Health Status Report '02.

## *Workforce*

The 2004 Healthcare Workforce Development Partnership, a task force made up of representatives from academia, health care organizations, businesses, public health, employment department, and the legislature, identified 20 of 54 health professions where recruitment and retention of qualified people is a problem in Vermont. These professions are listed in Figure D-5. While recruitment for these professions is a problem statewide, the problem is greater in rural areas. The 20 professions included in the report were selected because

- the vacancy rate was greater than 10 percent,
- the vacancy rate was less than 10 percent but the turnover rate was greater than 10 percent, or
- the turnover rate was less than 10 percent and national demand is expected to exceed supply in the future.

The Department of Health conducts biannual surveys of physicians, physician assistants and dentists. The resulting data show the distribution of these providers throughout the state. However, except with regard to physicians, there are no standards for assessing the adequacy of supply. The standards for physicians were developed in 1990, with suggested adjustments for changes in population demographics for 2000 and 2010. There has been no examination of these criteria to be sure the assumptions about population are still adequate, nor has there been an assessment of the effect of changes in health care technology, access to care, insurance coverage or other factors.

That said, the 2000 survey of physicians identified five counties with a severe need for additional primary care physicians based on these standards: Caledonia, Essex, Franklin, Grand Isle and Orange. Four counties had a limited need for additional physicians: Addison, Orleans, Rutland and Washington.

A survey of Vermont institutions that hire registered nurses, conducted in 2003, found 12 percent of positions vacant in hospitals and home health agencies and 19 percent vacant in nursing homes.

Figure D-5
**Health Professions with the highest vacancy and/or turnover rates**

- Dental assistant
- Dental hygienist
- Dentist
- Dietetic technician
- Licensed practical nurse
- Medical laboratory technician
- Medical laboratory technologist
- Occupational therapist
- Personal care attendant
- Pharmacist
- Pharmacy technician
- Physician: Primary care
- Physician: Specialty care
- Psychiatric nurse practitioner
- Psychiatrist: Adult
- Psychiatrist: Child
- Registered nurse
- Respiratory therapist
- Social worker
- Speech language pathologist

The dental health workforce, specifically dentists, is declining. A growing number of dentists are retiring from practice and fewer than 4400 are entering the profession each year to replace them. Between 1986 and 1993, a net of six dental

schools in the United States closed. New England sends fewer students to dental schools than any other region; Vermont has no dental school and has only one dental residency program, with few training slots. This limitation creates a dependency on the importation of people who are not originally from Vermont.

According to the 2003 Vermont Survey of Dentists, conducted biannually by the Department of Health, there were 367 dentists working in Vermont. Of these, 80 percent were primary care dentists, including 284 in general dentistry and 9 in pediatric dentistry; 194 of the dentists were aged 50 and older, and 129 of these were aged 55 and older. More than one-third of all dentists said they planned to retire within 10 years.

# Vermont State Health Plan
# 2005

## Part 6: Appendices

## *Appendix A: Authority*

This document, "Vermont State Health Plan 2005," is authorized by Act 53 of 2003, "An Act Relating to Hospital and Health Care Systems Accountability, Capital Spending, and Annual Budgets." Act 53 amends 18 V.S.A. §9405(a) to read:

> "No later than January 1, 2005, the secretary of human services, in consultation with the commissioner [of the Vermont department of banking, insurance, securities and health care administration] and health care professionals and after receipt of public comment, shall adopt a state health plan that sets forth the health goals and values for the state… The plan shall include health promotion, health protection, nutrition, and disease prevention priorities for the state, identify available human resources as well as human resources needed for achieving the state's health goals and the planning required to meet those needs, and identify geographic parts of the state needing investments of additional resources in order to improve the health of the population. The plan shall contain sufficient detail to guide development of the state health resource allocation plan. Copies of the plan shall be submitted to members of the senate and house committees on health and welfare no later than January 15, 2005."

## *Appendix B: Other Health Plans*

The following state plans are included in the State Health Plan by reference as if set out in full:

***Arthritis:*** The Vermont Arthritis Plan (publication expected in December, 2004)

***Asthma:*** Vermont Asthma Prevention Plan (2003)
www.healthyvermonters.info/hs/epi/cdepi/asthma/stateasthmaplan.pdf

***Cancer:*** The Vermont Cancer Control Plan (publication expected in June, 2005)

***Developmental Disabilities:*** State System of Care Plan for Developmental Services. July 2004
http://www.ddmhs.state.vt.us/docs/ds/dsSCPFy05-Fy07.pdf

***Diabetes***: The Vermont Diabetes Control Plan (1998)
www.healthyvermonters.info/hi/diabetes/pubs/diabctrl.shtml

***Heart Disease:*** The Vermont Cardiovascular Disease and Stroke Plan (2004)
www.healthyvermonters.info/admin/pubs/misc/112904CardiovascularPlanDraft.pdf)

***Injury***: The Vermont Injury Prevention Plan (2001)
www.healthyvermonters.info/hi/healthpromo/pubs/2001/injuryplan.shtml

***Oral Health:*** The Vermont Oral Health Plan (publication expected in January, 2005)
http://www.healthyvermonters.info/hi/dentalhealth/OralHealthPlanDraft.pdf

***Health Disparities:*** Reducing Health Disparities (publication expected in Summer, 2005)

***Mental Health:*** Statewide System of Care Plan for Adult Mental Health in Vermont April 2002
http://www.ddmhs.state.vt.us/docs/adult/mhadultSOCPlan0204.doc

***Mental Health:*** State System of Care Plan for Child, Adolescent and Family Mental Health. April 2004
http://www.ddmhs.state.vt.us/docs/cafu/MHkidsSOC2004.pdf

***Substance Abuse:*** Drug Education, Treatment, Enforcement & Rehabilitation (2004)
http://www.state.vt.us/adap/deter/deter.htm

***Tobacco***: Vermont Best Practices To Cut Smoking Rates in Half by 2010 (2000)
www.healthyvermonters.info/hi/tobacco/pubs/tobacco2000.shtml

**Vermont State Hospital:** Recommendations for the Future of the Services Provided at the Vermont State Hospital: Strengthening the Continuum of Care for Vermonters with Mental Illness.

http://www.ahs.state.vt.us/vshfutures/CSreportMH050204.pdf

## *Appendix C: Hard Choices in Health Care*

In "Hard Choices in Health Care 2002: What Vermonters are Thinking" the Commission on the Public's Health Care Values and Priorities conducted phone surveys and focus groups to determine attitudes and values related to health care.[9] The study identifies several areas of consensus among Vermonters that are important considerations for the Vermont State Health Plan. These include:

- Strong support for providing health insurance to elderly and low-income through Medicare and Medicaid.
- High level of commitment to the principle that all Vermonters get the health care they need, when they need it, regardless of ability to pay.
- Belief that those receiving taxpayer-funded health care should pay at least part of the cost.
- Strong consensus for public participation in any health care rationing decisions.

At the same time, the survey identified several issues open to deliberation, where there are conflicting feelings, or where attitudes are incompletely or poorly informed. These include: high priority is given to the conflicting goals of extending care to everyone *and* containing costs; end-of-life care, with a large minority believing that it is morally wrong for doctors to honor a patient's wishes to withhold care at the end of life; and, health insurance policies with limited benefits.

Issues that have the potential to stop the public dialog because Vermonters are sharply divided in their opinions are: containing costs by limiting care (rationing) and factors driving the cost of health care.

There are some limitations in using this report to guide the Vermont State Health Plan. The "use of care" questions were limited to respondent thoughts about low-income consumers, not about their own use of care, and the focus of the report is on access and payment and does not address quality of care or efficiency of care. Selected data items from this report are found in the table below.

| Question and responses | 2002 percent | 1996 percent | Change Percent* |
|---|---|---|---|
| *What are highest priorities for government? (top or above average)* | | | |
| Make sure all Vermonters get the care they need | 84 | 77 | 7* |
| Lower health care costs | 81 | 70 | 11* |
| Make sure all children get the nutrition they need in early years | 81 | 80 | 1 |
| Reduce use of illegal drugs, especially heroin | 79 | -- | |
| Improve schools and education | 76 | 77 | -1 |
| | | | |

[9] Commission on the Public's Health Care Values and Priorities. *Hard Choices in Health Care 2002: What Vermonters are Thinking*. http://www.bishca.state.vt.us/HcaDiv/second_rep_comm_on_PHCVP%20.pdf

| Question and responses | 2002 percent | 1996 percent | Change Percent* |
|---|---|---|---|
| | | | |
| *Why are health care costs so high?* | | | |
| Prescription drug costs | 84 | -- | |
| Excessive insurance company profits | 77 | 69 | 8* |
| Runaway administrative costs | 66 | 69 | -3 |
| Excessive doctors fees | 60 | 57 | 3 |
| Excessive hospital profits | 60 | 52 | 8* |
| Limited competition among insurance companies | 59 | -- | |
| Waste, fraud and abuse | 59 | 62 | -3 |
| People with unhealthy lifestyles | 58 | 61 | -3 |
| Not enough preventive care | 55 | 57 | -2 |
| People go to doctors, hospitals when they don't need to | 54 | 48 | 6 |
| Lack of knowledge of costs of treatment options | 52 | -- | |
| People use ED for non-emergency care | 50 | 44 | 6 |
| Greater use of expensive, new technologies | 47 | 37 | 10* |
| Unnecessary tests due to fear of malpractice law suits | 42 | 52 | -10* |
| New requirements to cover mental health, chiropractic | 33 | -- | |
| | | | |
| *What to do about rising costs (first choice only)* | | | |
| Increase taxes | 34 | 28 | 6 |
| Ration care | 20 | 28 | -8* |
| Ration care for those with taxpayer-supported insurance | 19 | 24 | -5 |
| Cut back in other areas like education | 13 | 12 | 1 |
| | | | |
| *How to improve Vermont's health care system* | | | |
| Honor living wills | 93 | 98 | -5 |
| Continue to regulate hospital costs | 89 | 96 | -7* |
| Sometimes require insurers to cover at-home care | 88 | 92 | -4 |
| Uninsured use new, less expensive clinics instead of ED | 85 | 89 | -4 |
| Limit malpractice awards | 74 | 83 | -9* |
| Allow families of terminally ill to stop care | 66 | 69 | -3 |
| Provide incentives to join HMOs | 63 | 75 | -12* |
| Limit choice of MD/hospital for those with tax-supported insurance | 39 | 40 | |
| Limit care those with tax-funded insurance can receive | 39 | 49 | -10* |
| | | | |
| *Who should develop rationing guidelines* | | | |
| Elected officials, experts working with the public | 74 | -- | |
| Elected officials and medical experts | 16 | -- | |
| | | | |
| * Significant at 95% Confidence Interval (CI). The sampling error is $\pm$ 4 percent for percents between 40 and 60 percent at a 95% CI. For comparison of two years, change that is $\geq$ 7 percent is significant at 95% CI | | | |

## *Appendix D: 40 Developmental Assets*[10] TM

| | Category | Asset Name and Definition |
|---|---|---|
| External Assets | **Support** | **1. Family Support**-Family life provides high levels of love and support. |
| | | **2. Positive Family Communication**-Young person and her or his parent(s) communicate positively, and young person is willing to seek advice and counsel from parents. |
| | | **3. Other Adult Relationships**-Young person receives support from three or more nonparent adults. |
| | | **4. Caring Neighborhood**-Young person experiences caring neighbors. |
| | | **5. Caring School Climate**-School provides a caring, encouraging environment. |
| | | **6. Parent Involvement in Schooling**-Parent(s) are actively involved in helping young person succeed in school. |
| | **Empowerment** | **7. Community Values Youth**-Young person perceives that adults in the community value youth. |
| | | **8. Youth as Resources**-Young people are given useful roles in the community. |
| | | **9. Service to Others**-Young person serves in the community one hour or more per week. |
| | | **10. Safety**-Young person feels safe at home, school, and in the neighborhood. |
| | **Boundaries & Expectations** | **11. Family Boundaries**-Family has clear rules and consequences and monitors the young person's whereabouts. |
| | | **12. School Boundaries**-School provides clear rules and consequences. |
| | | **13. Neighborhood Boundaries**-Neighbors take responsibility for monitoring young people's behavior. |
| | | **14. Adult Role Models**-Parent(s) and other adults model positive, responsible behavior. |
| | | **15. Positive Peer Influence**-Young person's best friends model responsible behavior. |
| | | **16. High Expectations**-Both parent(s) and teachers encourage the young person to do well. |
| | **Constructive Use of Time** | **17. Creative Activities**-Young person spends three or more hours per week in lessons or practice in music, theater, or other arts. |
| | | **18. Youth Programs**-Young person spends three or more hours per week in sports, clubs, or organizations at school and/or in the community. |
| | | **19. Religious Community**-Young person spends one or more hours per week in activities in a religious institution. |
| | | **20. Time at Home**-Young person is out with friends "with nothing special to do" two or fewer nights per week. |

[10] Search Institute. *Developmental Assets.* www.search-institute.org. Copyright © 2004 by Search Institute SM, Minneapolis, MN.

| | Category | Asset Name and Definition |
|---|---|---|
| **Internal Assets** | **Commitment to Learning** | **21. Achievement Motivation**-Young person is motivated to do well in school. |
| | | **22. School Engagement**-Young person is actively engaged in learning. |
| | | **23. Homework**-Young person reports doing at least one hour of homework every school day. |
| | | **24. Bonding to School**-Young person cares about her or his school. |
| | | **25. Reading for Pleasure**-Young person reads for pleasure three or more hours per week. |
| | **Positive Values** | **26. Caring**-Young person places high value on helping other people. |
| | | **27. Equality and Social Justice**-Young person places high value on promoting equality and reducing hunger and poverty. |
| | | **28. Integrity**-Young person acts on convictions and stands up for her or his beliefs. |
| | | **29. Honesty**-Young person "tells the truth even when it is not easy." |
| | | **30. Responsibility**-Young person accepts and takes personal responsibility. |
| | | **31. Restraint**-Young person believes it is important not to be sexually active or to use alcohol or other drugs. |
| | **Social Competencies** | **32. Planning and Decision Making**-Young person knows how to plan ahead and make choices. |
| | | **33. Interpersonal Competence**-Young person has empathy, sensitivity, and friendship skills. |
| | | **34. Cultural Competence**-Young person has knowledge of and comfort with people of different cultural/racial/ethnic backgrounds. |
| | | **35. Resistance Skills**-Young person can resist negative peer pressure and dangerous situations. |
| | | **36. Peaceful Conflict Resolution**-Young person seeks to resolve conflict nonviolently. |
| | **Positive Identity** | **37. Personal Power**-Young person feels he or she has control over "things that happen to me." |
| | | **38. Self-Esteem**-Young person reports having high self-esteem. |
| | | **39. Sense of Purpose**-Young person reports that "my life has a purpose." |
| | | **40. Positive View of Personal Future**-Young person is optimistic about her or his personal future. |

## *Appendix E: NHTSA Standards for Emergency Medical Services*

***Regulation and policy***

To provide a quality, effective system of emergency medical care, each EMS system must have in place comprehensive enabling legislation with provision for a lead EMS agency. This agency has the authority to plan and implement an effective EMS system, and to promulgate appropriate rules and regulations for each recognized component of the EMS system (authority for statewide coordination; standardized treatment, transport, communication and evaluation, including licensure of out-of-hospital services and establishment of medical control; designation of specialty care centers; and Public Information Education and Relations (PIER) program). There is a consistent, established funding source to adequately support the activities of the lead agency and other essential resources that are necessary to carry out the legislative mandate. The lead agency operates under a single, clear management structure for planning and policy setting, but strives to achieve consensus among EMS constituency groups in formulating public policy, procedures and protocols. The role of any local/regional EMS agency or council who are charged with implementing EMS policies is clearly established, as well as their relationship to the lead agency. Supportive management elements for planning and developing effective statewide EMS systems include the presence of a formal state EMS Medical Director, a Medical Advisory Committee for review of EMS medical care issues and state EMS Advisory Committee (or Board). The EMS Advisory Committee has a clear mission, specified authority and representative membership from all disciplines involved in the implementation of EMS systems.

***Resource management***

Central coordination and current knowledge (identification and categorization) of system resources is essential to maintain a coordinated response and appropriate resource utilization within an effective EMS system. A comprehensive State EMS plan exists that is based on a statewide resource assessment and updated as necessary to guide EMS system activities. A central statewide data collection (or management information) system is in place that can properly monitor the utilization of EMS resources; data is available for timely determination of the exact quantity, quality, distribution and utilization of resources. The lead agency is adequately staffed to carry out central coordination activities and technical assistance. There is a program to support recruitment and retention of EMS personnel, including volunteers.

***Human resources and training***

EMS personnel can perform their mission only if adequately trained and available in sufficient numbers throughout the State. The State EMS lead agency has a mechanism to assess current manpower needs and establish a comprehensive plan for stable and consistent EMS training programs with effective local and regional support. At a minimum, all transporting out-of-hospital emergency medical care personnel are trained to the EMT-Basic level, and out-of-hospital training programs utilize a standardized curriculum for each level of EMS personnel (including EMS dispatchers). EMS training programs and instructors are routinely monitored, instructors meet certain requirements, the curriculum is standardized throughout the State, and valid and reliable testing procedures are utilized. In addition, the State lead agency has standardized, consistent policies and procedures for certification (and re-certification) of

personnel, including standards for basic and advanced level providers, as well as instructor certification. The lead agency ensures that EMS personnel have access to specialty courses such as ACLS, PALS, BTLS, PHTLS, ATLS, etc., and a system of critical incident stress management has been implemented.

***Transportation***

Safe, reliable ambulance transportation is a critical component of an effective EMS system. The transportation component of the State EMS plan includes provisions for uniform coverage, including a protocol for air medical dispatch and a mutual aid plan. This plan is based on a current, formal needs assessment of transportation resources, including the placement and deployment of all out-of-hospital emergency medical care transport services. There is an identified ambulance placement or response unit strategy, based on patient need and optimal response times. The lead agency has a mechanism for routine evaluation of transport services and the need for modifications, upgrades or improvements based on changes in the environment (i.e., population density). Statewide, uniform standards exist for inspection and licensure of all modes of transport (ground, air, water) as well as minimum care levels for all transport services (minimum staffing and credentialing). All out-of-hospital emergency medical care transport services are subject to routine, standardized inspections, as well as spot checks to maintain a constant state of readiness throughout the State. There is a program for the training and certification of emergency vehicle operators.

***Facilities***

It is imperative that the seriously ill patient be delivered in a timely manner to the closest appropriate facility. The lead agency has a system for categorizing the functional capabilities of all individual health care facilities that receive patients from the out-of-hospital emergency medical care setting. This determination should be free of political considerations, is updated on an annual basis and encompasses both stabilization and definitive care. There is a process for verification of the categorizations (i.e., on-site review). This information is disseminated to EMS providers so that the capabilities of the facilities are known in advance and appropriate primary and secondary transport decisions can be made. The lead agency also develops and implements out-of-hospital emergency medical care triage and destination policies, as well as protocols for specialty care patients (such as severe trauma, burns, spinal cord injuries and pediatric emergencies) based on the functional assessment of facilities. Criteria are identified to guide interfacility transport of specialty care patients to the appropriate facilities. Diversion policies are developed and utilized to match system resources with patient needs; standards are clearly identified for placing a facility on bypass or diverting an ambulance to another facility. The lead agency has a method for monitoring if patients are directed to appropriate facilities.

***Communications***

A reliable communications system is an essential component of an overall EMS system. The lead agency is responsible for central coordination of EMS communications (or works closely with another single agency that performs this function) and the state EMS plan contains a component for comprehensive EMS communications. The public can access the EMS system with a single, universal emergency phone number, such as 9-1-1 (or preferably Enhanced 9-1-1), and the communications system provides for prioritized dispatch. There is a common, statewide radio system that allows for direct communication between all providers (dispatch to ambulance

communication, ambulance to ambulance, ambulance to hospital, and hospital to hospital communications) to ensure that receiving facilities are ready and able to accept patients. Minimum standards for dispatch centers are established, including protocols to ensure uniform dispatch and standards for dispatcher training and certification. There is an established mechanism for monitoring the quality of the communication system, including the age and reliability of equipment.

***Public information, education and prevention***

To effectively serve the public, each State must develop and implement an EMS public information, education and prevention (PIEP) program. The PIEP component of the State EMS plan ensures that consistent, structured PI&E programs are in place that enhance the public's knowledge of the EMS system, support appropriate EMS system access, demonstrate essential self-help and appropriate bystander care actions, and encourage injury prevention. The PIEP plan is based on a needs assessment of the population to be served and an identification of actual or potential problem areas (i.e., demographics and health status variable, public perceptions and knowledge of EMS, type and scope of existing PIEP programs). There is an established mechanism for the provision of appropriate and timely release of information on EMS-related events, issues and public relations (damage control). The lead agency dedicates staffing and funding for these programs, which are directed at both the general public and EMS providers. The lead agency enlists the cooperation of other public service agencies in the development and distribution of these programs, and serves as an advocate for legislation that potentially results in injury/illness prevention.

***Medical direction***

EMS is a medical care system that involves medical practice as delegated by physicians to non-physician providers who manage patient care outside the traditional confines of office or hospital. As befits this delegation of authority, the system ensures that physicians are involved in all aspects of the patient care system. The role of the State EMS Medical Director is clearly defined, with legislative authority and responsibility for EMS system standards, protocols and evaluation of patient care. A comprehensive system of medical direction for all out-of-hospital emergency medical care providers (including BLS) is utilized to evaluate the provision of medical care as it relates to patient outcome, appropriateness of training programs and medical direction. There are standards for the training and monitoring of direct medical control physicians, and statewide, standardized treatment protocols. There is a mechanism for concurrent and retrospective review of out-of-hospital emergency medical care, including indicators for optimal system performance. Physicians are consistently involved and provide leadership at all levels of quality improvement programs (local, regional, state).

***Trauma systems***

To provide a quality, effective system of trauma care, each State must have in place a fully functional EMS system; trauma care components must be clearly integrated with the overall EMS system. Enabling legislation should be in place for the development and implementation of the trauma care component of the EMS system. This should include trauma center designation (using ACS-COT, ACEP, APSA-COT and/or other national standards as guidelines), triage and transfer guidelines for trauma patients, data collection and trauma registry definitions and mechanisms, mandatory autopsies and quality improvement for trauma patients. Information

and trends from the trauma registry should be reflected in injury prevention programs. Rehabilitation is an essential component of any statewide trauma system and hence these services should also be considered as part of the designation process. The statewide trauma system (or trauma system plan) reflects the essential elements of the Model Trauma Care System Plan.

***Evaluation***

A comprehensive evaluation program is needed to effectively plan, implement and monitor a statewide EMS system. The EMS system is responsible for evaluating the effectiveness of services provided victims of medical or trauma related emergencies, therefore the EMS agency should be able to state definitively what impact has been made on the patients served by the system. A uniform, statewide out-of-hospital data collection system exists that captures the minimum data necessary to measure compliance with standards (i.e., a mandatory, uniform EMS run report form or a minimum set of data that is provided to the state); data are consistently and routinely provided to the lead agency by all EMS providers and the lead agency performs routine analysis of this data. Pre-established standards, criteria and outcome parameters are used to evaluate resource utilization, scope of services, effectiveness of policies and procedures, and patient outcome. A comprehensive, medically directed, statewide quality improvement program is established to assess and evaluate patient care, including a review of process (how EMS system components are functioning) and outcome. The quality improvement program should include an assessment of how the system is currently functioning according to the performance standards, identification of system improvements that are needed to exceed the standards and a mechanism to measure the impact of the improvements once implemented. Patient outcome data is collected and integrated with health system, emergency department and trauma system data; optimally there is linkage to databases outside of EMS (such as crash reports, FARS, trauma registry, medical examiner reports and discharge data) to fully evaluate quality of care. The evaluation process is educational and quality improvement/system evaluation findings are disseminated to out-of-hospital emergency medical care providers. The lead agency ensures that all quality improvement activities have legislative confidentiality protection and are non-discoverable.

## *Appendix F: Population Projections*

**Vermont: State Age Population Projections 2000-2020[11]**

| Age Group | Census 2000 | Projection 2005 | Projection 2010 | Projection 2015 | Projection 2020 |
|---|---|---|---|---|---|
| **0-4** | 33,989 | 33,353 | 33,407 | 35,040 | 36,091 |
| **5-9** | 41,101 | 34,498 | 33,683 | 33,775 | 35,514 |
| **10-14** | 45,397 | 42,279 | 35,439 | 34,455 | 34,573 |
| **15-19** | 45,770 | 52,043 | 48,895 | 41,988 | 40,962 |
| **20-24** | 37,852 | 48,175 | 54,114 | 51,141 | 44,544 |
| **25-29** | 34,182 | 28,342 | 37,857 | 43,498 | 40,729 |
| **30-34** | 40,385 | 34,163 | 27,994 | 37,791 | 43,692 |
| **35-39** | 49,376 | 42,568 | 35,840 | 29,187 | 39,845 |
| **40-44** | 52,513 | 50,460 | 43,480 | 36,507 | 29,631 |
| **45-49** | 50,107 | 52,747 | 50,670 | 43,674 | 36,640 |
| **50-54** | 43,725 | 49,900 | 52,555 | 50,539 | 43,594 |
| **55-59** | 32,603 | 43,184 | 49,402 | 52,145 | 50,259 |
| **60-64** | 24,317 | 31,825 | 42,267 | 48,562 | 51,427 |
| **65-69** | 21,126 | 23,146 | 30,421 | 40,586 | 46,862 |
| **70-74** | 19,557 | 19,196 | 21,166 | 28,003 | 37,603 |
| **75-79** | 15,930 | 16,596 | 16,427 | 18,283 | 24,411 |
| **80-84** | 10,901 | 12,187 | 12,819 | 12,853 | 14,481 |
| **85+** | 9,996 | 11,272 | 12,807 | 14,173 | 15,184 |

**Vermont: County Age 65+ Population Projections 2000-2020**

| County / Year | Census 2000 | Projection 2005 | Projection 2010 | Projection 2015 | Projection 2020 |
|---|---|---|---|---|---|
| **Addison** | 4065 | 4346 | 5067 | 6352 | 7926 |
| **Bennington** | 6167 | 6448 | 7067 | 8121 | 9368 |
| **Caledonia** | 4272 | 4421 | 4811 | 5815 | 7116 |
| **Chittenden** | 13780 | 15000 | 17452 | 21850 | 27316 |
| **Essex** | 981 | 1042 | 1192 | 1370 | 1545 |
| **Franklin** | 5004 | 5333 | 6117 | 7405 | 9122 |
| **Grand Isle** | 850 | 1036 | 1323 | 1707 | 2208 |
| **Lamoille** | 2638 | 2967 | 3547 | 4495 | 5587 |
| **Orange** | 3612 | 3918 | 4506 | 5570 | 6758 |
| **Orleans** | 3952 | 4211 | 4761 | 5574 | 6620 |
| **Rutland** | 9480 | 9782 | 10821 | 12729 | 15059 |
| **Washington** | 7463 | 7801 | 8708 | 10772 | 13150 |
| **Windham** | 6173 | 6578 | 7588 | 9419 | 11594 |
| **Windsor** | 9073 | 9514 | 10679 | 12719 | 15173 |
| ***Vermont*** | 77510 | 82398 | 93639 | 113898 | 138541 |

[11] Rayer, S. *Population Projections for Vermont.*